bit one

Signal Interface Processor

Technology & Art of Sound
Manufactured by elettromedia Italy

ideato,
progettato,
costruito
in Italia

ADVANCED MANUAL

Revision 1.5d

Update for:

- bit One.1
- Pc Software 1.5
- bit One Firmware 1.5.0.0
- DRC Firmware 1.50
- Accessories: SFC / DRC cable extension Kit
- Instruction for Windows 7 and Windows 8 installation

Full DA

bit Drive
your sound

audison
www.audison.eu

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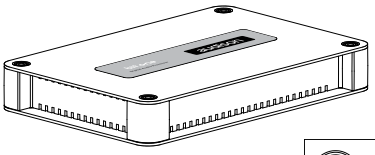
1. PRODUCT DESCRIPTION

bit One is a signal digital processor essential to maximize the acoustic performance of your Car Audio system.
It consists of a 32 bit DSP processor and 24 bit AD and DA converters.
It can be interfaced with any factory system, even in vehicles featuring an integrated audio processor, since, thanks to the de-equalization function, the bit One will send back a linearized signal.
The bit One features 21 signal inputs; 8 Hi-Level, 1 Phone, 6 Low-Level, 4 Aux, 1 Optical Digital, 1 Coax Digital.
It provides 8 PRE OUT analog or digital outputs.
Each output channel has a 32 band equalizer available. It also features a 66 frequency steps electronic crossover as well as BUTTERWORTH or LINKWITZ filters with 6-48 dB slopes; a digital time delay line along with an equalizer on each auxiliary input are also available. The user can select adjustments that will allow him to interract with the bit One trough the remote controll device called DRC.

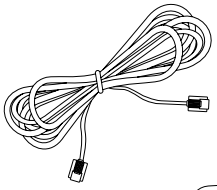
2. PACKAGING CONTENTS

- bit One - Signal Interface Processor

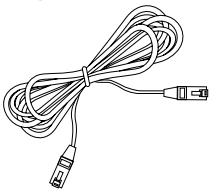


- DRC (Digital Remote Control) Control Panel

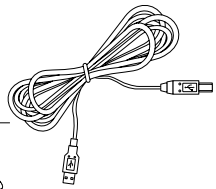
- Printed Quick Start Guide



- 5.0 m / 196,85” AC Link (RJ-12) cable

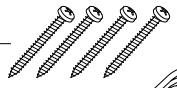


- 5.0 m / 196,85” AD Link (LAN class 5S - RJ45) cable

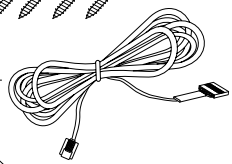


- 3.0 m / 118,11” USB cable

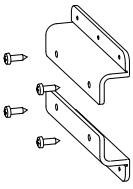
- N. 4 4.2 x 38 mm self-tapping, cross head fixing screws



- 4.5 m / 177,16” DRC / ACLink cable



- N. 2 fixing brackets with 2.9 x 6.5 mm self-tapping, cross head screws



- CD ROM with:
  bit One Software
  USB-ACNet drivers
  This Advanced Manual (.pdf format)
  Test tracks

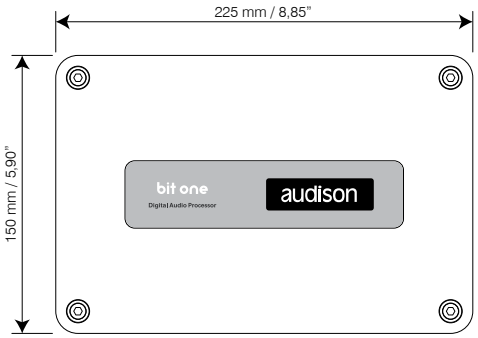
- DVD comprising:
  Test tracks encoded with Dolby Digital 5.1

WARNING: a PC provided with **Windows XP, Windows Vista, Windows 7 or Windows 8,** operating system, 1.5 GHz minimum processor speed and 1 GB RAM minimum memory, are required to install the software and setup the bit One.

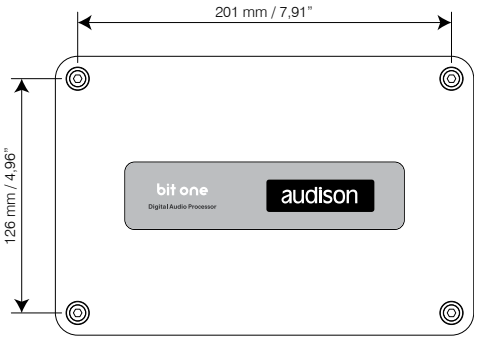
3. BIT ONE AND DRC INSTALLATION

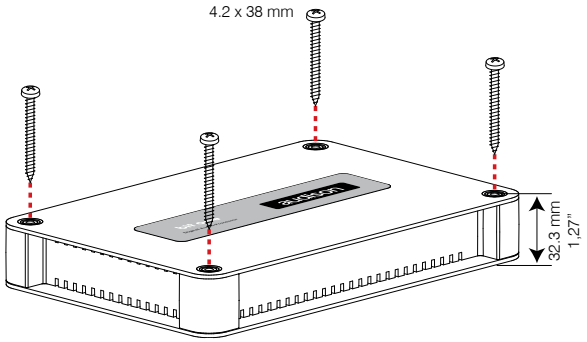
BIT ONE:

External dimensions



Mounting dimensions

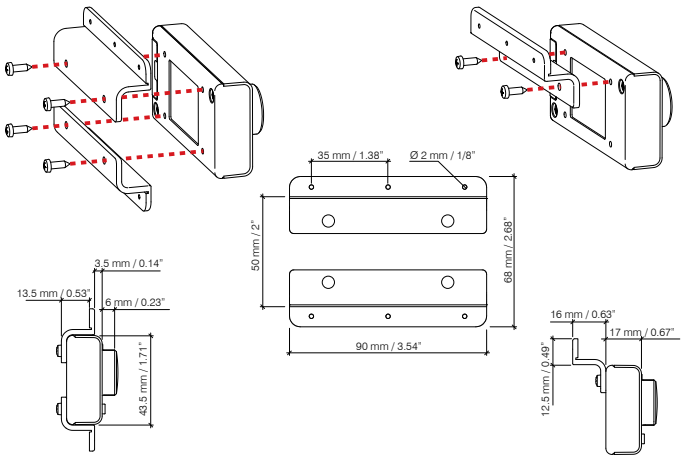


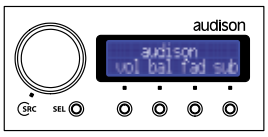


(provided)

DRC:

How to install the DRC

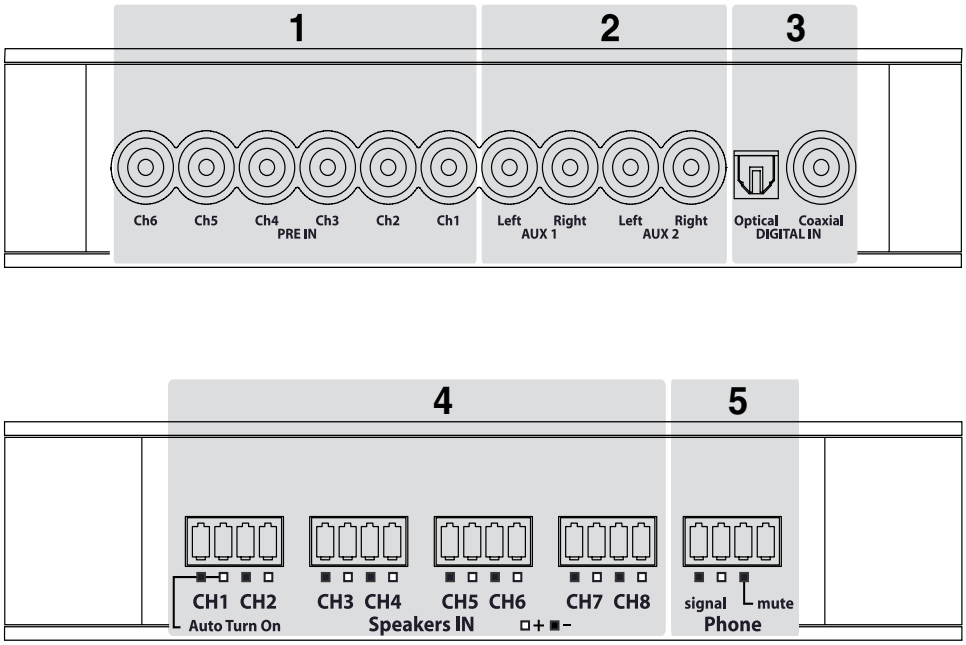




WARNING: do not use aggressive cleaning agents or abrasive cloth to clean the display. Simply use a soft cotton cloth lightly damped with water.

4. CONNECTION PANELS - DESCRIPTION

4.1 INPUT SIGNALS



Remark: Ch1 Auto Turn ON can be excluded in the bit One.1 version.

■ – negative pole (ground)
□ + positive pole

1. **PRE IN low-level MASTER inputs** *(see section 5.4.1-2)*
   Ch1 - Ch2 - Ch3 - Ch4 - Ch5 - Ch6
   Connect here the RCA cables coming from the main analog signal source.
   If these inputs are used, the MASTER SPEAKER IN inputs can not be used.

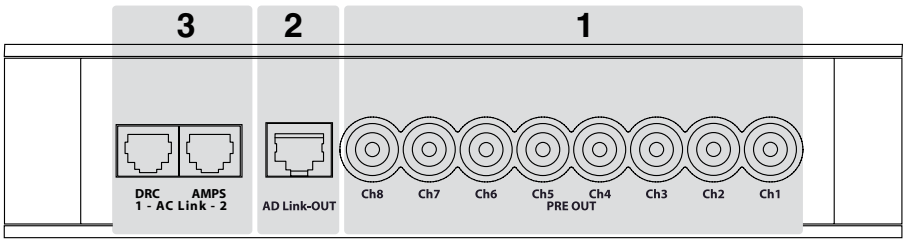
2. **AUX1 – AUX2 auxiliary low-level STEREO inputs** *(see section 5.4.3-4)*
   Connect here the RCA cables coming from additional analog signal sources.

3. **DIGITAL IN S/PDIF digital inputs** *(see section 5.4.5-6)*
   The applicable signal must be a 48 kHz/24bit max. STEREO signal.
   COAXIAL. Connect a 75 ohm shielded cable.
   OPTICAL. Connect an optical fibre cable with TOSLINK connector.

4. **SPEAKERS IN** hi-level MASTER input *(see section 5.5.1-2)*
   Ch1 - Ch2 - Ch3 - Ch4 - Ch5 - Ch6 - Ch7 - Ch8
   Connect here the specific cables coming from the power output of the main signal source.
   If these inputs are used, the MASTER PRE IN inputs can not be used.
   Ch1 features AUTO TURN ON (ART), providing the ability to automatically turn on/off the bit One through the connection with the source speaker outputs. In the bit One.1 version (check label on the bottom of the product) this feature can be disabled *(see section 5.5.1)*.

5. **PHONE input for phone hands-free kits** *(see section 5.5.3)*
   SIGNAL. Connect the audio output cables coming from the hands-free kit system in use.
   MUTE. Connect the hands-free kit remote control (MUTE/PHONE MUTE).

4.2 OUTPUT SIGNALS

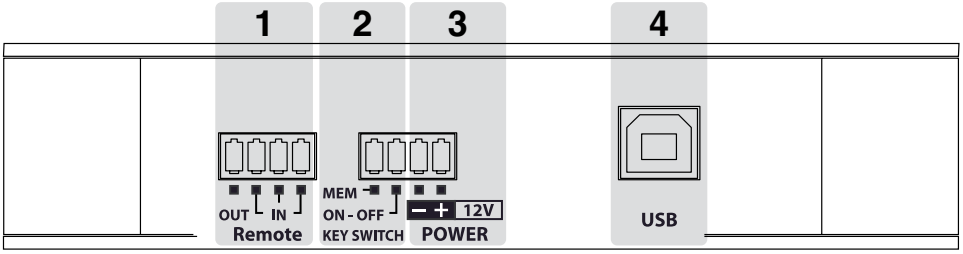


1. **PRE OUT low-level analog signal** *(see section 5.6.2-3)*
   Ch1 - Ch2 - Ch3 - Ch4 - Ch5 - Ch6 - Ch7 - Ch8
   Connect here the RCA cables going to the system's amplifiers.

2. **AD Link - OUT digital signal** *(see section 5.6.1-3)*
   S/PDIF standard digital signal (Ch1÷Ch8) to connect amplifiers provided with appropriate ADLink input.

3. **AC Link 1 - 2 Remote Controls**
   DRC: Connection plug for the remote control panel of the processor functions and the devices connected to the AMPS bus *(see section 5.3)*.
   AMPS: Connection bus to control the amplifiers provided with ACLink connection *(see section 5.6.1-3)*.

4.3 INPUTS - REMOTE CONTROL OUTPUTS AND POWER SUPPLY



1. **REMOTE IN-OUT** *(see section 5.1)*
   IN: for the processor remote turn-on through one or multiple signal sources, featuring Rem Out control.
   OUT: output for the remote turn-on of the other devices/amplifiers connected to the processor.
   The REMOTE OUT output current capability is 20 mA. From the REMOTE-IN signal, the processor only takes 7 seconds to supply the signal to the **REMOTE OUT** output.

IMPORTANT REMARK: current capability of the bit One.1 version (check the label on the bottom of your bit One to know its version) is 130 mA; it can also drive an automotive relay (make sure its absorption is not higher than 130 mA).

WARNING: the bit One must be switched on before the amplifiers connected edit are turned on. It's necessary to connect the sources Remote Out to the bit One Remote In and then the bit One Remote Out to the Remote In of the other devices/amplifiers connected to the bit One *(section 5.1)*.

2. **KEY SWITCH ignition key connection** *(see section 5.2.3-4)*
   MEM: it stores the processor status when it is turned off.
   ON - OFF: it turns the processor on and off when the vehicle turn on/off ignition key is turned.

3. **POWER power supply connection** *(section 5.1)*
   - 12V + : Positive and negative connection terminal for car 12 V power supply.

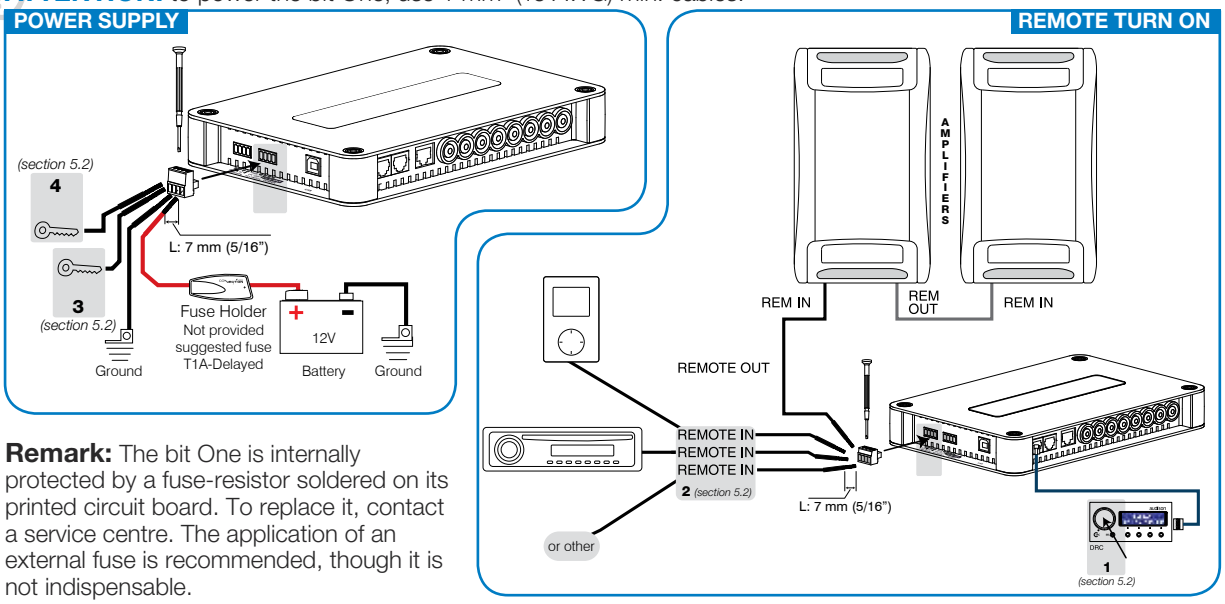
WARNING: make sure the connection polarity is as indicated on the terminals. A mis-connection may result in damage to the bit One. After applying a 12V power, wait at least 20 seconds before turning the bit One on.

4. **USB** *(section 5.3)*
   USB (B) connection plug, to connect the processor to a PC and manage its functions through the bit One software. The connection standard is USB 1.1/2.0 compatible.

5. CONNECTIONS

5.1 POWER SUPPLY AND REMOTE TURN-ON

ATTENTION: to power the bit One, use 1 mm² (16 AWG) min. cables.



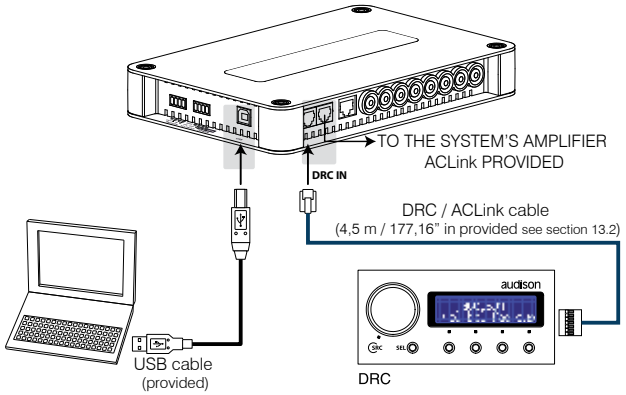
Remark: The bit One is internally protected by a fuse-resistor soldered on its printed circuit board. To replace it, contact a service centre. The application of an external fuse is recommended, though it is not indispensable.

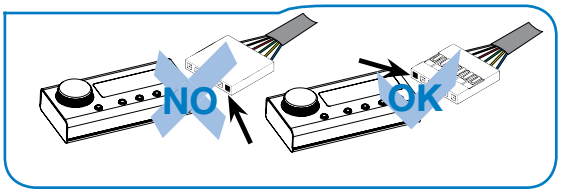
5.2 HOW TO TURN ON/OFF THE BIT ONE

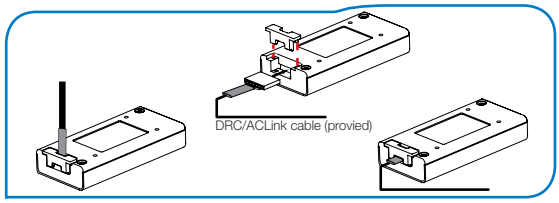
The bit One is on when the Audison logo lights up in blue. After receiving the turn-on input the bit One takes 9 seconds to become operative. It can be turned on / off in the following ways:

1. Push the DRC main control switch (to turn on). Keep the DRC main control knob pressed (to shut down). In this case no other connections Remote In / KEY SWITCH are required, but they can coexist *(see section 12)*.
2. Connecting one of the Remote In plugs using a Remote signal coming from one source, the KEY SWITCH connection is not required, but it can coexist.
3. Through the KEY SWITCH ON OFF. Every time you turn on / off the car ignition key, the bit One will turn on / off. If this control is used, KEY SWITCH MEM can not be used.
4. Through the KEY SWITCH MEM. If the bit One was turned off through the KEY SWITCH MEM connection, it will automatically turn on again by turning the KEY SWITCH MEM itself. If it was turned off through a different method (ex. through the Remote or the DRC) while the KEY SWITCH MEM was still active, the bit One will not turn on again through the KEY SWITCH MEM; you will have to turn it on through either the DRC or the Remote. If you use the KEY SWITCH MEM, the KEY SWITCH ON OFF can not be used.
5. Through the SPEAKER IN CH1. The AUTO TURN ON (ART) activates by connecting the amplified head unit output to the SPEAKER IN CH1 input channel, the ART can be disabled on the bit One.1 (check the label on the bottom of your bit One to know its version) by opening the product and removing the jumper as shown in the picture *(see section 5.5.1)*.
6. Automatically through the hands-free phone kit *(see section 5.5.3)*, **with the bit One "mute" control turned off.**

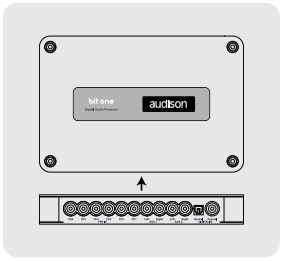
5.3 PERSONAL COMPUTER and DIGITAL REMOTE CONTROL (DRC)





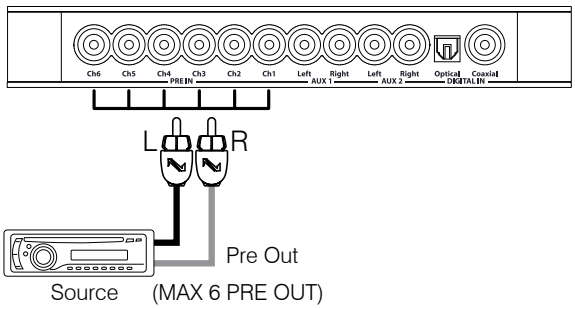


5.4 LOW-LEVEL AND DIGITAL INPUT SIGNALS

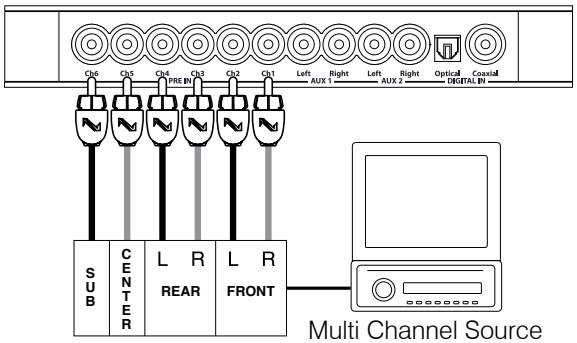


bit One
Bottom Side

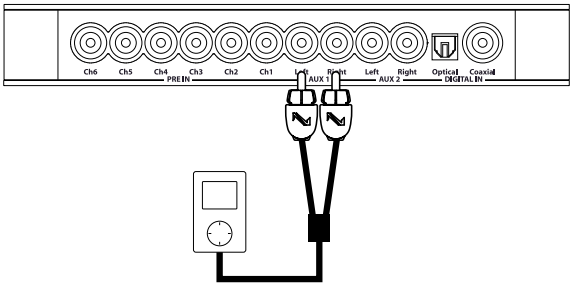
1. PRE IN - Ch1/Ch6 analog STEREO signal (select 2 signals from Ch1 and Ch6)



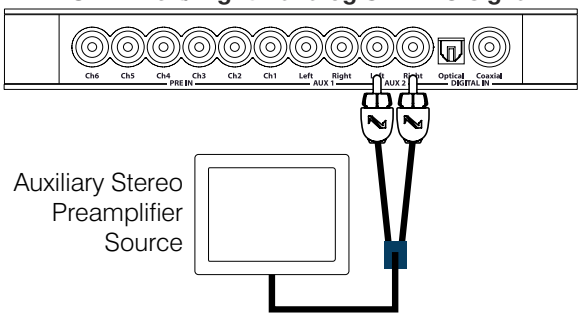
2. PRE IN - Ch1/Ch 6 - analog Audio Car Theatre



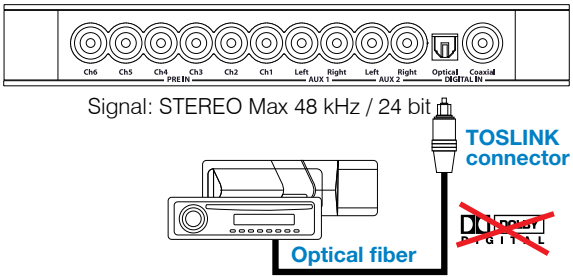
3. AUX 1 - Left/Right - analog STEREO signal



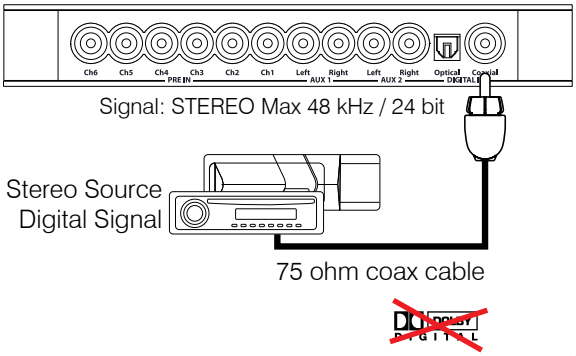
4. AUX 2- Left/Right – analog STEREO signal



5. DIGITAL IN OPTICAL Digital S/PDIF STEREO signal

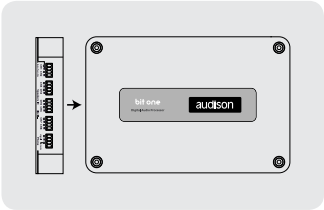


6. DIGITAL IN COAXIAL Digital S/PDIF STEREO signal



DIGITAL IN - WARNING: the digital inputs accepts up to 48 kHz / 24 bit stereo PCM signals. So DOLBY DIGITAL (AC3) multi-channel signals coming from audio/video sources (such as the audio of a film in DVD) or DTS can not be reproduced. The output of these devices will therefore be set in STEREO mode for the signal to be reproduced. If digital signals at frequency higher than 48 kHz (96 - 192 kHz) are supplied, the bit One locks up. In that case, turn the bit One off, supply the adequate signal and turn it on again.

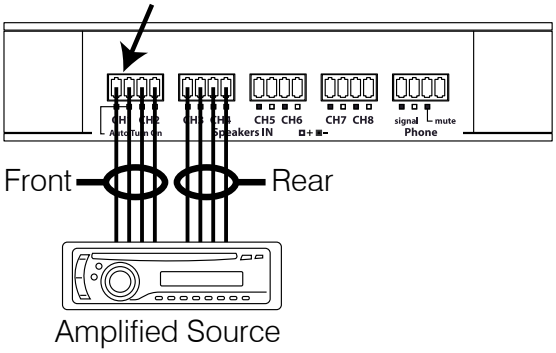
5.5 HIGH-LEVEL INPUT SIGNALS



bit One
Left Side

1. SPEAKER IN Hi-Level STEREO Front + Rear

CH1: Auto Turn On System (ART) *(see section 5.2.5)*

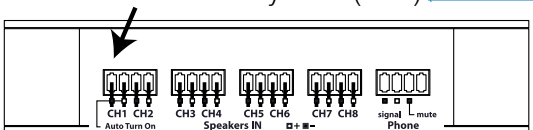


Front — Rear

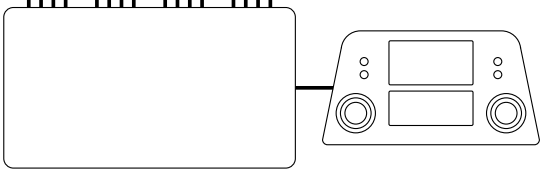
Amplified Source

2. SPEAKER IN Hi-Level MULTICHANNEL

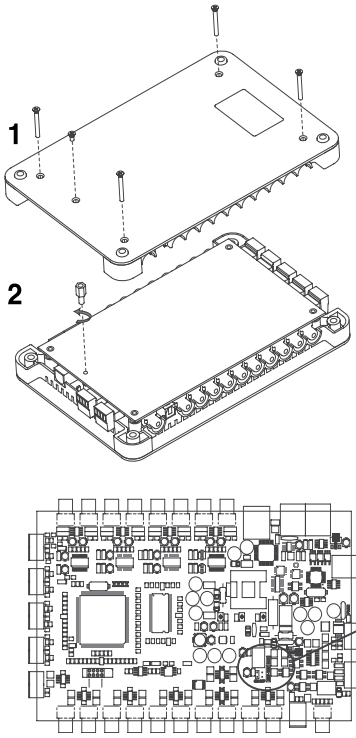
CH1: Auto Turn On System (ART) *(see section 5.2.5)*



MAX:
8 amplified
channels

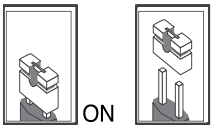


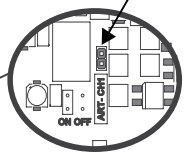
Original amplified source



ART circuit

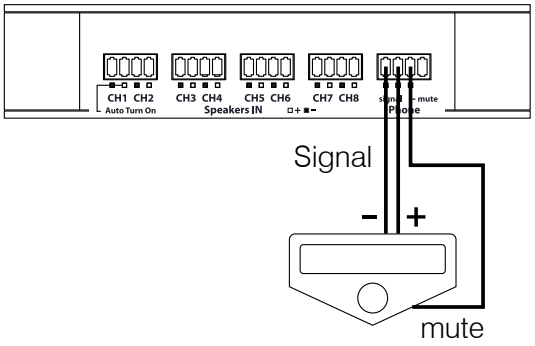
CH 1 - Auto Turn On





bit One.1
To deactivate the ART function on Ch1 take out the Jumper as indicated in the picture.

3. CONNECTION WITH HANDS-FREE PHONE KIT

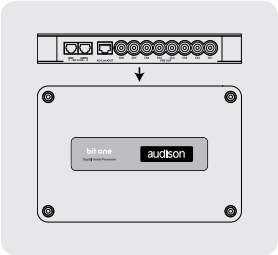


Signal: input compatible with the hands-free kit headphones or speaker output. Sensitivity adjustable via the bit One PC software from 0.6V to 10V RMS.

Mute: bit One on. It gives priority to the phone conversation, allowing to resume the audio reproduction when the phone call is finished.

Mute: bit One off. It turns the bit One on. When a phone call is received, the phone ringing tone is audible after around 9 seconds. Once the phone call is finished, the bit One turns off.

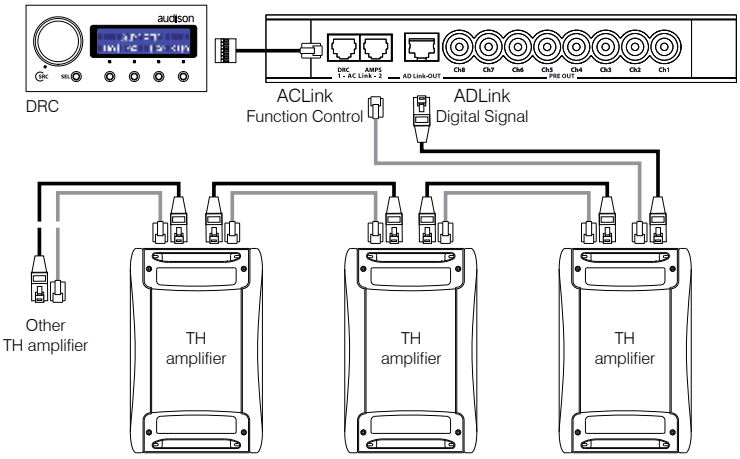
5.6 OUTPUT SIGNALS



bit One
Top Side

ADLINK-OUT / ACLINK 2 - AMPS

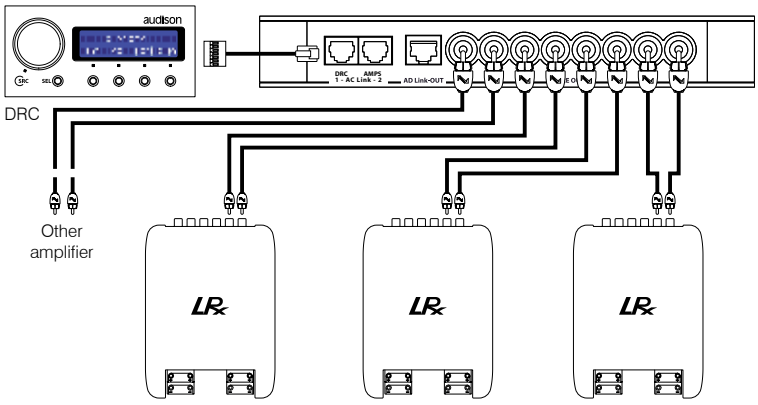
1. OUTPUT TO AN AMPLIFIERS SYSTEM PROVIDED WITH ADLINK AND ACLINK CONNECTION (THESIS TH) *(see section 8.4.7)*



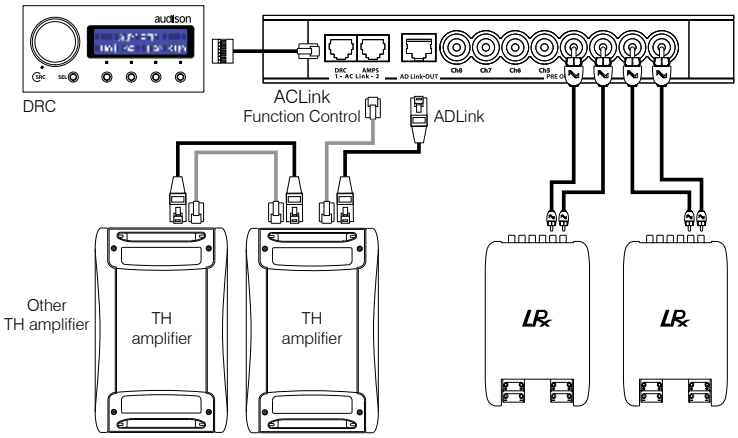
Remark: the output channels are 8 in total. The sum of the channels of the amplifiers connected must not exceed 8.
To increase the number of channels, however, the same function (AMP ID) can be assigned to more than one amplifier

2. OUTPUT TO A PRE PROVIDED AMPLIFIERS SYSTEM

(see section 8.4.7)



3. OUTPUT TO AN AMPLIFIERS SYSTEM PROVIDED WITH AD LINK CONNECTIONS (THESIS TH) AMPLIFIERS SYSTEM PROVIDED WITH PRE INPUT *(see section 8.4.7)*



Remark: in total, 8 output channels are available.
The sum of the analog and digital outputs (ADLink) must not exceed the total available channels.

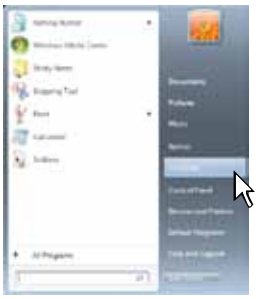
6. BIT ONE SOFTWARE AND DRIVERS - INSTALLATION GUIDE

6.1 SOFTWARE INSTALLATION GUIDE

1. Insert the “bit One Setup 1.5 CD” into the CD-Player of the PC you are going to use.
2. **Windows XP:** select “**My Computer**” from the Windows **START** menu;
   Windows Vista: select “**Computer**” from the Windows **START** menu;
   Windows 7: select “**Computer**” from the Windows **START** menu;
   Windows 8: click on the **DESKTOP** icon;

Windows XP

Windows Vista


Windows 7

Windows 8

3. **Windows XP:** right-click your mouse on the “bit One v.1.5” CD icon and click on “Explore”;
   Windows Vista: right-click your mouse on the “bit One v.1.5” CD icon and click on “Explore”;
   Windows 7: right-click your mouse on the “bit One v.1.5” CD icon and click on “Open”;
   Windows 8: double click on the **Computer** icon.

Windows XP

Windows Vista

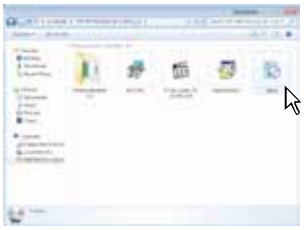
Windows 7

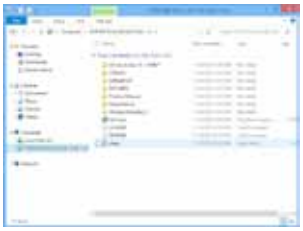
Windows 8

4. **Windows XP:** double click on the “setup” icon;
   Windows Vista: double click on the “setup” icon;
   Windows 7: double click on the “setup” icon;
   Windows 8: select the CD ROM drive an double click on **setup** icon

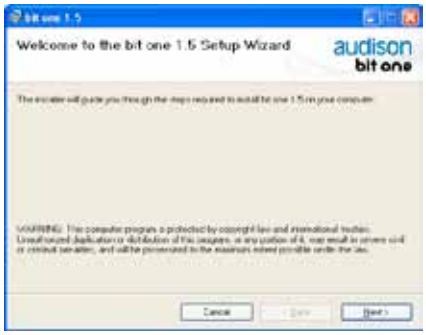
Windows XP

Windows Vista

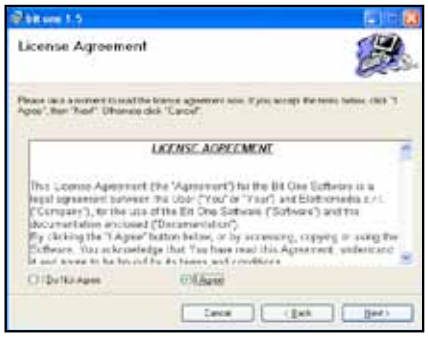

Windows 7


Windows 8

5. **Windows XP:** select **NEXT** to go on with the installation, **CANCEL** to interrupt it;
   Windows Vista: select **NEXT** to go on with the installation, **CANCEL** to interrupt it;
   Windows 7: select **NEXT** to go on with the installation, **CANCEL** to interrupt it;
   Windows 8: select **NEXT** to go on with the installation, **CANCEL** to interrupt it;



6. **Windows XP:** select **I Agree** and then **NEXT**;
   Windows Vista: select **I Agree** and then **NEXT**;
   Windows 7: select **I Agree** and then **NEXT**;
   Windows 8: select **I Agree** and then **NEXT**;



7. **Windows XP:** select
   - **Everyone** if you have the system administrator privileges, so, once installed, the program can be used by anyone who uses that PC;
   - **Just me** if you want that, once installed, the program can only be used by yourself as single system user.

   Then click on **NEXT**;

   Windows Vista: select
   - **Everyone** if you have the system administrator privileges, so, once installed, the program can be used by anyone who uses that PC;
   - **Just me** if you want that, once installed, the program can only be used by yourself as single system user.

   Then click on **NEXT**;

   Windows 7: select
   - **Everyone** if you have the system administrator privileges, so, once installed, the program can be used by anyone who uses that PC;
   - **Just me** if you want that, once installed, the program can only be used by yourself as single system user.

   Then click on **NEXT**;

   Windows 8: select
   - **Everyone** if you have the system administrator privileges, so, once installed, the program can be used by anyone who uses that PC;
   - **Just me** if you want that, once installed, the program can only be used by yourself as single system user.

   Then click on **NEXT**;

8. **Windows XP:** go on and complete the installation procedure, then click on **CLOSE** to exit the installation;
Windows Vista: go on and complete the installation procedure, then click on **CLOSE** to exit the installation;
Windows 7: go on and complete the installation procedure, then click on **CLOSE** to exit the installation;
Windows 8: go on and complete the installation procedure, then click on **CLOSE** to exit the installation;

9. The bit One PC software is now installed in your system. Leave the “bit One Setup 1.5 CD” in the CD-Player and proceed with the installation of the Drivers as detailed out in the following chapter 6.2.

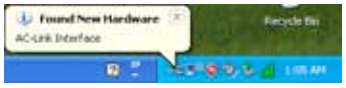
6.2 DRIVERS INSTALLATION GUIDE

1. Turn the bit One on.

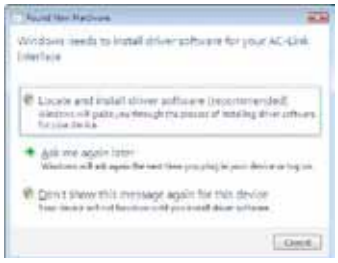
2. Connect the USB cable located on the appropriate connector on the bit One to the USB available on the PC.

WARNING: When connecting a PC laptop via a USB cable to the bit One being the device turned on, the laptop has to work with its own battery, keeping it disconnected from the mains adapter (external power supply). Once the connection between the PC laptop and the bit One is established, you can immediately connect the computer, if necessary, through the mains adapter.

3. **Windows XP:** The PC will recognise the bit One interface and will ask you to install the driver;
Windows Vista: Click on “Locate and install driver software (recommended)”;
Windows 7: The PC will recognise the bit One interface and will ask you to install the driver;



Windows XP

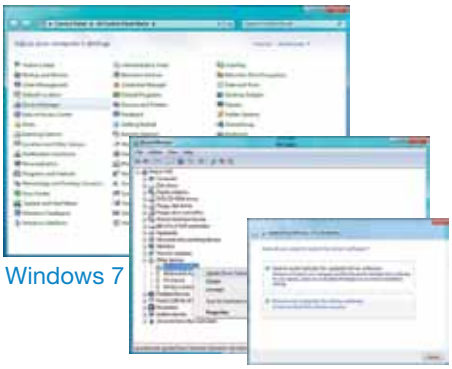

Windows Vista

Windows 7

4. **Windows XP:** select “No, not this time” and click on “Next”;
Windows Vista: click on “Don’t search online”;
Windows 7: select START ➔ Control Panel ➔ Device Manager, right click your mouse on the “AC-Link interface” and select “Update driver software”➔ “Browse my computer for driver software”;

Windows XP

Windows Vista


Windows 7

5. Check if the bit One Setup CD is inside the CD-ROM drive
Windows XP: select “Install software automatically” then click on “Next”;
Windows Vista: click on “Next”;
Windows 7: click the “Browse“ button to locate the setup CD, select the CD “bit One V_15”, click on “OK”, then on “Next”;

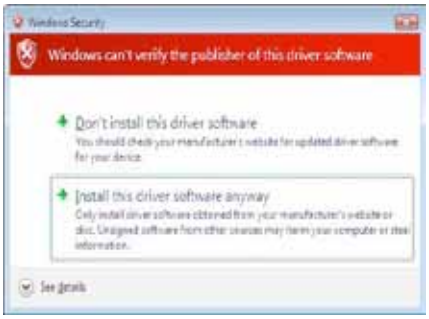
Windows XP

Windows Vista

Windows 7

6. The following window regarding the driver certification warning will show up.
Windows XP: click on “Continue Anyway”;
Windows Vista: click on “Install this driver software anyway”;
Windows 7: click on “Install this driver software anyway”;

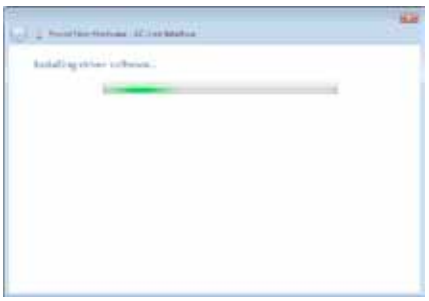
Windows XP


Windows can't verify the publisher of this driver software
Don't install this driver software
Install this driver software anyway
Windows Vista

Windows can't verify the publisher of this driver software
Don't install this driver software
Install this driver software anyway
Windows 7

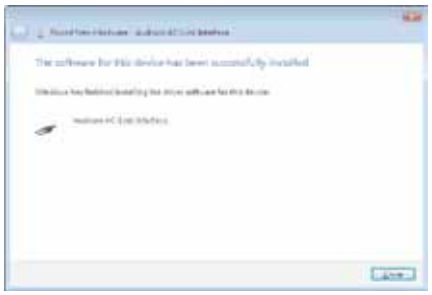
7. The system will install the ACLink interface drivers:

Windows XP


Windows Vista

Windows 7

8. If the procedure was successfully completed, the system will notify you that the driver installation has been completed.
Windows XP: click on “Finish”;
Windows Vista: click on “Close”;
Windows 7: click on “Close”;



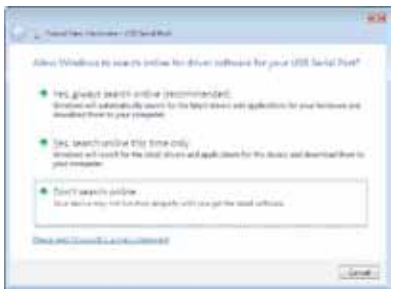
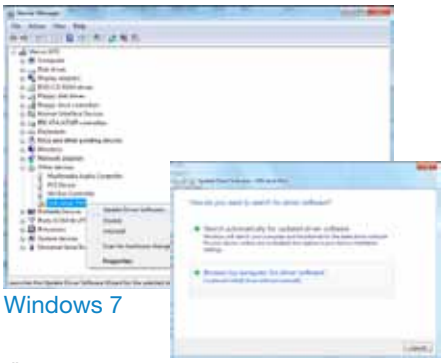
Windows XP Windows Vista Windows 7

9. **Windows XP:**The system will now recognise the virtual serial port connected to the bit One and will ask you to install the driver;
Windows Vista: Click on “Locate and install driver software (recommended)”;
Windows 7: The system will now recognise the virtual serial port connected to the bit One and will ask you to install the driver;

Windows needs to install driver software for your USB Serial Port
Locate and install driver software (recommended)
Ask me again later

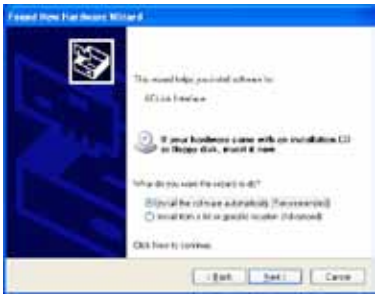
Windows XP Windows Vista Windows 7

10. **Windows XP:** select “No, not this time” and click on “Next”;
Windows Vista: click on “Don’t search online”;
Windows 7: select START ➾ Control Panel ➾ Device Manager, right click your mouse on the “USB Serial port” and select “Update driver software”➾ “Browse my computer for driver software”;

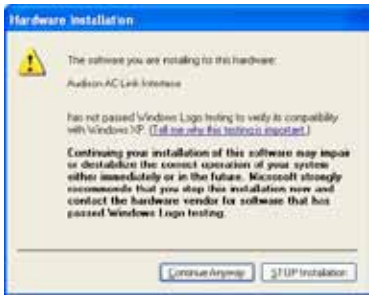
Windows XP Windows Vista Windows 7

Check if the bit One Setup CD is inside the CD-ROM drive.
Windows XP: select “Install software automatically” then click on “Next”;
Windows Vista: click on “Next”;
Windows 7: click the “Browse “ button to locate the setup CD, select the CD “bit One V_15”, click on “OK”, then on “Next”;

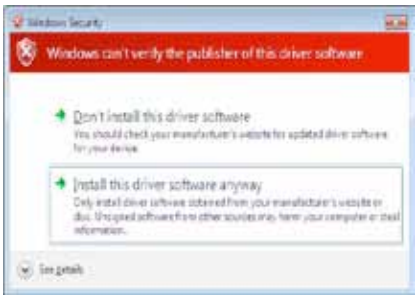


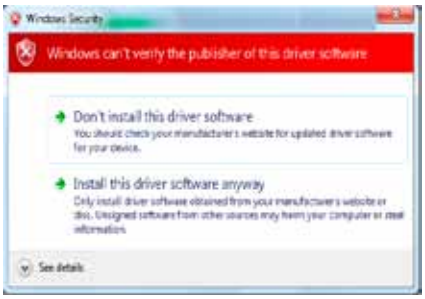
Windows XP Windows Vista Windows 7

12. The following window regarding the driver certification warning will show up.
Windows XP: click on “Continue Anyway”;
Windows Vista: click on “Install this driver software anyway”;
Windows 7: click on “Install this driver software anyway”;



Windows XP


Windows can't verify the publisher of this driver software
Don't install this driver software
Install this driver software anyway
Windows Vista


Windows can't verify the publisher of this driver software
Don't install this driver software
Install this driver software anyway
Windows 7

13. The system will install the ACLink drivers:

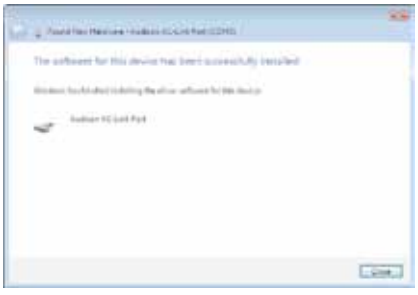
Windows XP

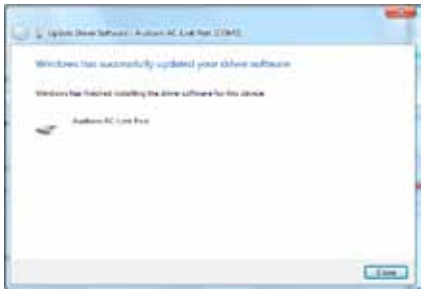
Windows Vista

Windows 7

14. If the procedure was successfully completed, the system will notify you that the driver installation has been completed.
Windows XP: click on “Finish”;
Windows Vista: click on “Close”;
Windows 7: click on “Close”;

Windows XP


Windows Vista


Windows 7

15. The installation of the bit One software and driver is now completed *(see section 8)*.

6.3 BIT ONE AC-LINK DRIVER INSTALLATION GUIDE ON WINDOWS 8

Remark: The following procedure will temporary disable Windows 8 driver signature enforcement, to allow the AC-Link drivers installation. The driver signature enforcement will be enabled again with the next reboot.
The procedure has to be performed only once: after the AC-Link driver installation is completed, it is NOT necessary to repeat this procedure again every time you want to connect and use the bit One.

1. Check if the bit One Setup CD is inside the CD-ROM drive

2. Press and keep pressed down the Windows key on the keyboard (it is located at the bottom left side, look for the symbol). Then, press the R key.

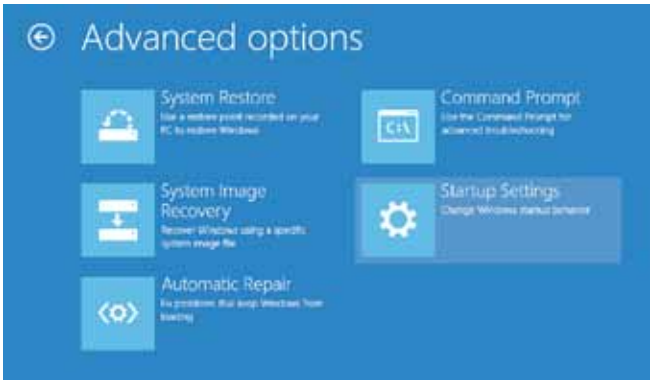
3. The following dialogue window will appear:

4. Type **shutdown.exe /r /o /f /t 00** in the “Open” field and click on “OK”:

5. The following screen will be shown. Click on “Troubleshoot”:

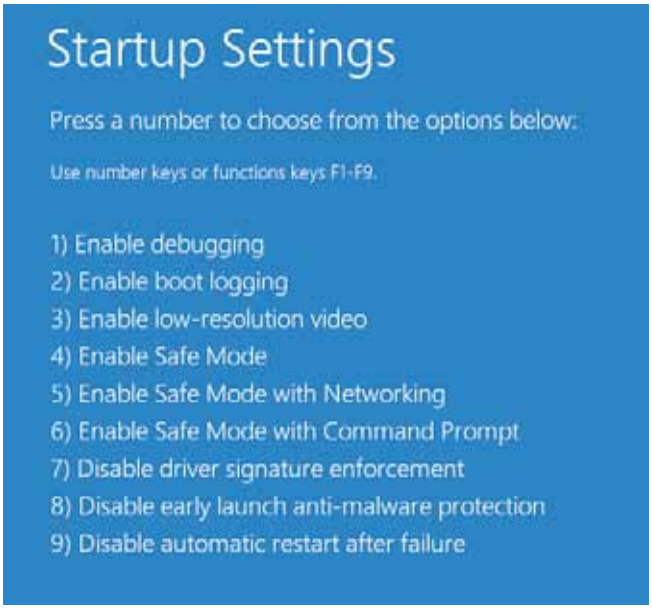
6. The following screen will be shown. Click on “Advanced options”:

7. The following screen will be shown. Click on “Startup Settings”:



8. The following screen will be shown. Click on “Restart”.

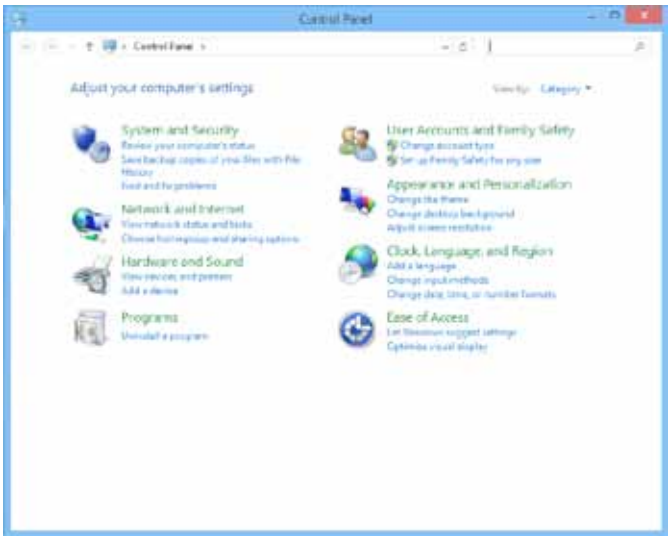
9. The PC will reboot. The following screen will be shown during reboot. Press “7” (Disable driver signature enforcement) and wait for complete Windows startup.


Startup Settings
Press a number to choose from the options below:
Use number keys or functions keys F1-F9.
1) Enable debugging
2) Enable boot logging
3) Enable low-resolution video
4) Enable Safe Mode
5) Enable Safe Mode with Networking
6) Enable Safe Mode with Command Prompt
7) Disable driver signature enforcement
8) Disable early launch anti-malware protection
9) Disable automatic restart after failure

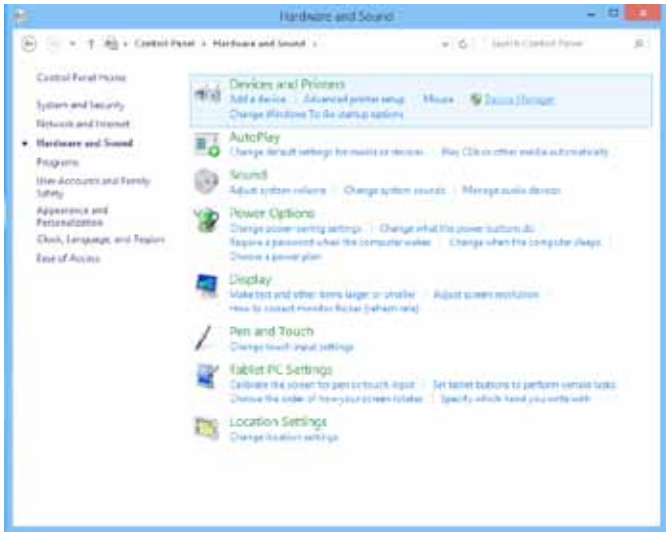
10. Right-click on the Windows Start screen. “All apps” key will show on the bottom right angle of the screen. Click it:

11. The screen will show all the icons. Locate the “Control Panel” icon and click on it:

12. The Control Panel will show up. Click on “Hardware and Sound”:

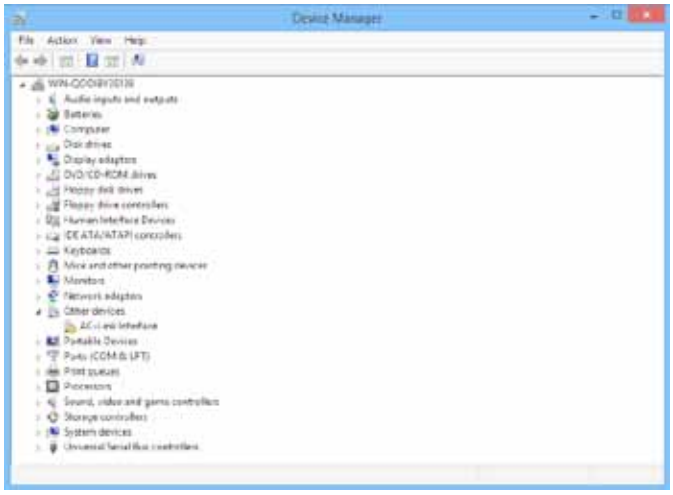


13. Click on “Device Manager”:



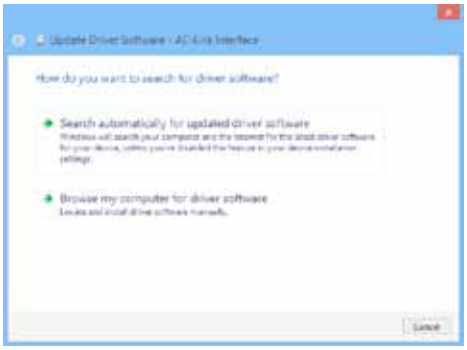
14. Power on the bit One processor and connect the USB to the PC.

15. The Control Panel will show the “AC-Link interface” with an exclamation mark. Double click on “AC-Link interface”:

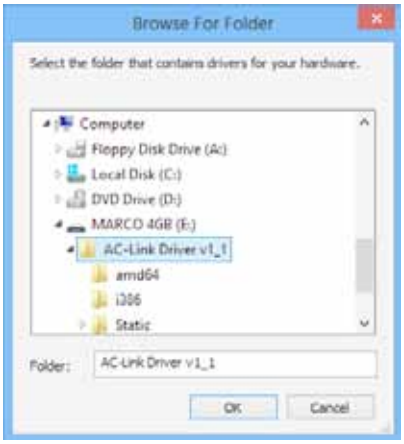


16. The following dialogue window will be shown. Click on “Update Driver…”

17. Click on “Browse my computer for driver software”:


How do you want to search for driver software?
Search automatically for updated driver software
Browse my computer for driver software
Cancel

18. Browse for the AC-Link Driver v1_1 previously copied as per step nr. 2 of this guide, and click on “OK”:



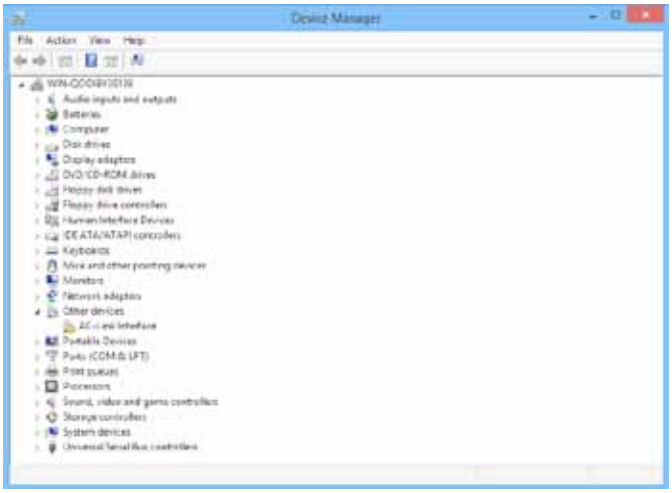
19. Click on “Next”:

20. The following warning will show up, this is normal. Click on “Install this driver software anyway”:

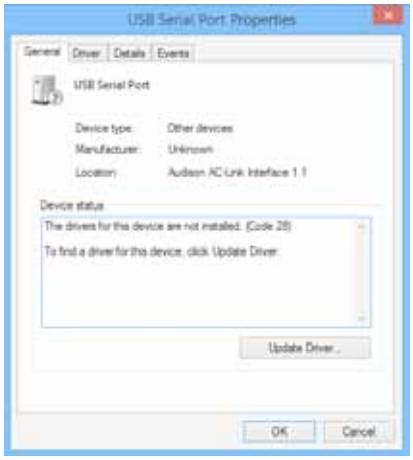
Windows can't verify the publisher of this driver software
Don't install this driver software
Install this driver software anyway

21. The AC-Link interface driver is now installed. The AC-Link Port still has to be installed. Click on “Close” to close the dialogue windows:

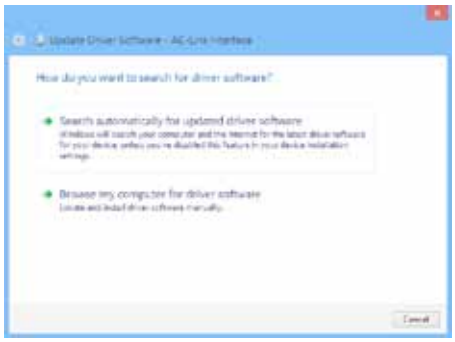
22. The system will now find the AC-Link port, named “USB Serial Port” as shown in the following screen. Double-click on “USB Serial Port”:



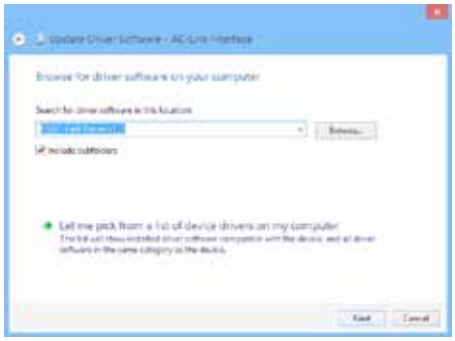
23. Click on “Update driver…”:



24. Click on “Browse my computer for driver software”:



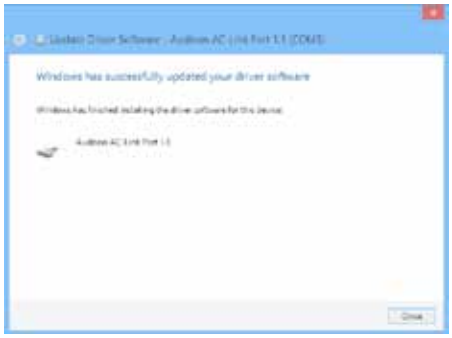
25. The system will propose the previously used AC-Link Drivers v1_1 folder: if so, click on “Next”. Otherwise, click on “Browse..:” locate the AC-Link Drivers v1_1 folder and then click on “Next”:



26. The following warning will show up, this is normal. Click on “Install this driver software anyway”:

Windows Security
Windows can't verify the publisher of this driver software
Don't install this driver software
Install this driver software anyway
See details

27. The AC-Link port driver is now installed, and the driver installation procedure is complete. Click on “Close” to close the dialogue windows:



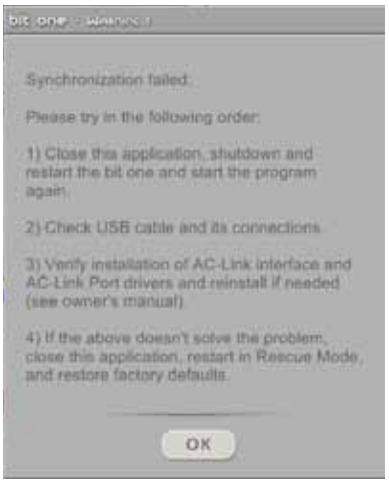
26. The installation of the bit One software and driver is now completed *(see section 8)*.

6.4 TROUBLESHOOTING SECTION FOR SOFTWARE INSTALLATION

- If you receive error messages when installing the software or the drivers, check if the user account you are using on your PC has admin privileges.

- If the PC that is connected to the bit One shows an error message regarding the connection with the bit One (for example “bit One device not found”), check the following points:

  • If the DRC display shows the message “audison: vol bal fad sub”:
  There should be a fault in the PC, for instance due to a wrong installation of the software or the drivers, or due to undetectable problems, on an operating system or hardware level.
  • If the DRC display shows the message “PC control - DRC is disabled”:
  In this case the PC is correctly initializing the ACLink bus but the fault is in the bit One. Exit the program on the PC, turn the bit One off then on again, then try reconnecting.


Synchronization failed.
Please try in the following order:
1) Close this application, shutdown and restart the bit one and start the program again.
2) Check USB cable and its connections.
3) Verify installation of AC-Link interface and AC-Link Port drivers and reinstall if needed (see owner's manual).
4) If the above doesn't solve the problem, close this application, restart in Rescue Mode, and restore factory defaults.
OK

If after turning on the bit One again one of the above messages appears, you may need to perform again the ACLink drivers installation.
You may be required to uninstall and reinstall the drivers also if other applications overwriting, even partly, the USB-ACLink drivers have been installed *(see section 7)*.

7. BIT ONE SOFTWARE AND DRIVERS UNINSTALLATION GUIDE

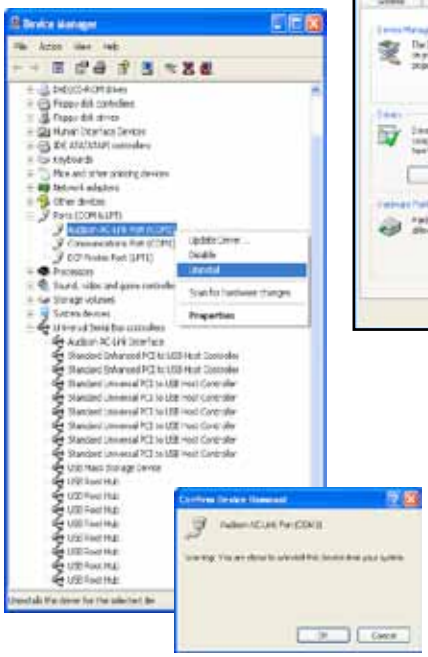
7.1 BIT ONE SOFTWARE UNINSTALL

Automatic procedure *(available only on the 1.5 Software version)*
To uninstall the bit One PC software you can use the link listed on the menu:
Start / All Programs / bit one 1.5 / uninstall.

Manual procedure *(available only on the 1.5 Software version)*
To uninstall the bit One PC software you can also follow the standard procedure:
Start / Control Panel / Applications Installation / bit one 1.5 / uninstall (in 1.5 software version).
Start / Control Panel / Applications Installation / bit one / uninstall (in older software versions).

7.2 HOW TO UNINSTALL THE DRIVERS WITH WINDOWS XP

1. DO NOT turn the bit One off and DO NOT disconnect the USB plug;
2. Open Control Panel and click on System Properties;
3. Select the Hardware folder and click on Device Manager;
4. Select Ports (COM & LPT), then right-click on Audison AC Link Port (COM X) and select Uninstall;



5. Click on OK when you are asked to confirm the device uninstall;

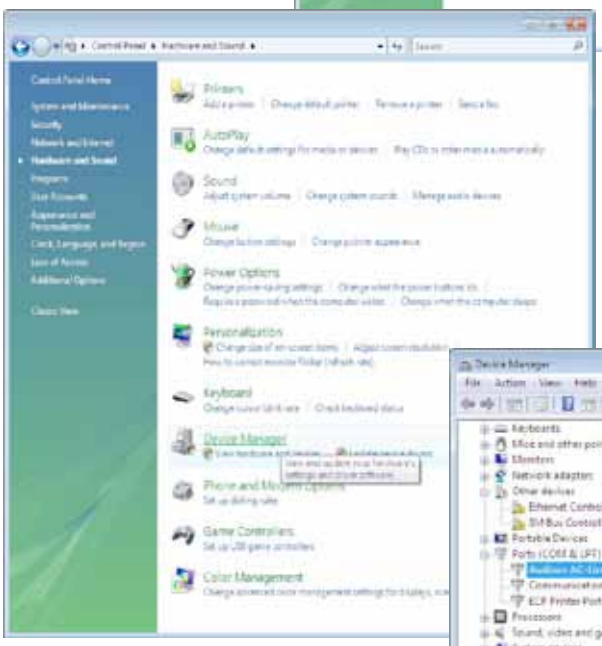
6. Select USB Controllers (Universal Serial Bus controllers) then right-click on Audison ACLink Interface and select Uninstall;
7. Click on OK when you are asked to confirm the device uninstall;
8. Disconnect the USB plug, turn off the bit One then turn it on again and connect again the USB plug and one available plug to the PC;
9. Repeat the installation procedure, *(see section 6)*.

7.3 HOW TO UNINSTALL THE DRIVERS WITH WINDOWS VISTA

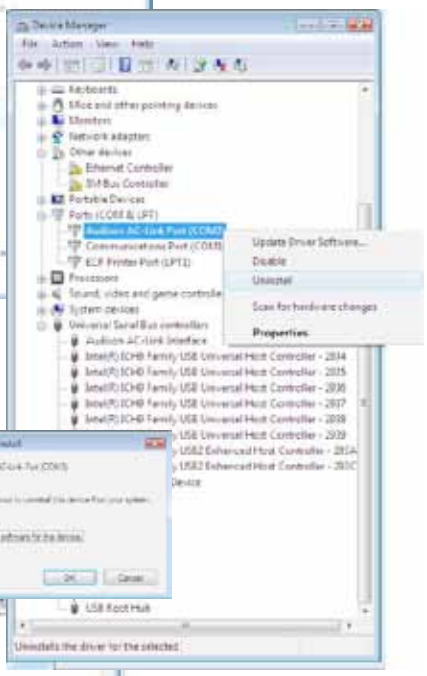
1. DO NOT turn the bit One off and DO NOT disconnect the USB plug;

2. Open Control Panel and click on Hardware and Sound;

3. Click on Device Manager;



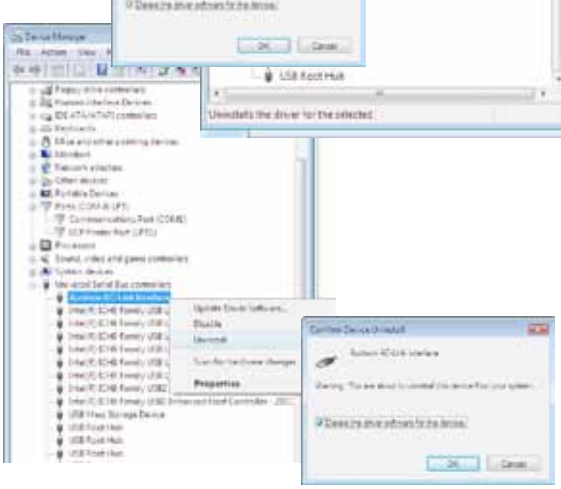
4. Select Ports (COM & LPT), then right-click on Audison ACLink Port (COM X) and select Uninstall;



5. A window asking you to confirm the device uninstall will appear; select “Delete the driver software for this device” and click on OK;

6. Select USB Controllers (Universal Serial Bus controllers) then right-click on Audison AC Link Interface and select Uninstall;

7. A window asking you to confirm the device uninstall will appear; select “Delete the driver software for this device” and click on OK;



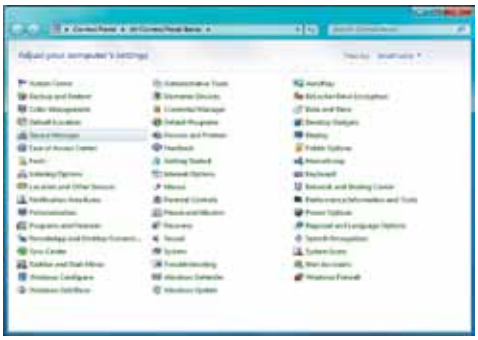
8. Disconnect the USB plug, turn off the bit One then turn it on again and connect again the USB plug and one available plug to the PC;

9. Repeat the installation procedure, *(see section 6)*.

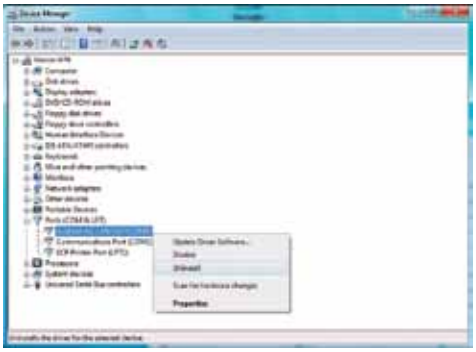
7.4 HOW TO UNINSTALL THE DRIVERS WITH WINDOWS 7

1. DO NOT turn the bit One off and DO NOT disconnect the USB plug;

2. Open the Control Panel and click on Device Manager;

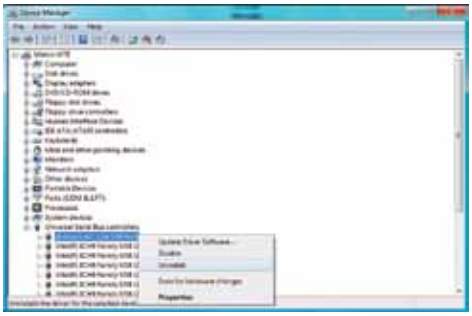


3. Select Ports (COM and LPT), then right-click on Audison AC-Link Port (COMX), and select Uninstall;



4. Click on OK when you are asked to confirm the device uninstall;

5. Select USB controllers (Universal Serial Bus controllers), right-click on Audison AC-Link Interface and select Uninstall;



6. Click on OK when you are asked to confirm the device uninstall;

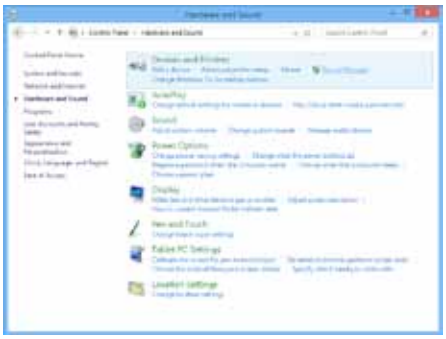
7. Disconnect the USB plug, turn the bit One off, then turn it on again and connect back the USB plug.

8. Repeat the installation procedure *(see section 6)*.

7.5 HOW TO UNINSTALL THE DRIVERS WITH WINDOWS 8

1. DO NOT turn the bit One off and DO NOT disconnect the USB plug;

2. Open Control Panel and click on Hardware and Sound;



3. Click on Device Manager;

4. Select Ports (COM & LPT),then right-click on Audison ACLink Port (COM X) and select Uninstall;

5. A window asking you to confirm the device uninstall will appear; select “Delete the driver software for this device” and click on OK;

6. Select USB Controllers (Universal Serial Bus controllers) then right-click on Audison AC Link Interface and select Uninstall;

7. A window asking you to confirm the device uninstall will appear; select “Delete the driver software for this device” and click on OK;

8. Disconnect the USB plug, turn off the bit One then turn it on again and connect again the USB plug and one available plug to the PC;

9. Repeat the installation procedure, *(see section 6)*.

8. HOW TO CONNECT THE BIT ONE TO THE PC

To adjust the bit One functions the software is required. The processor needs to be connected to the PC and turned on. After installing the software, start it by clicking on the icon shown on your desktop.

bit one 1.5

The first screenshot showing up is the start up page where you need to choose among:

- **OFFLINE** mode, bit One not connected;
- **TARGET** mode, bit One connected;
- **RESCUE** mode, bit One connected for Update/Rescue *(see section 10.1)*.

To select the start mode select the corresponding entry on the drop down menu, then press ENTER or double click on the bit One image.

8.1 OFFLINE MODE

In this case even if the bit One processor is connected to the PC, it does not interact with the software.

The OFFLINE mode can be used to work on the software without connecting the bit One to the PC to get familiar with the processor multiple functions. *For more information on the specific functions see section 8.3 for the TARGET mode.*
The software is pre-set to start with a 3-way + stereo Sub active multi-amplified system.

To set a new "virtual" system, and so to change the inputs and select the outputs, you need to select the function I/O Configuration Wizard in the "Config" window of the software main menu.
(*Follow same instructions as those for the TARGET mode - see section 8.3.1)*

Here is how the bit One software appears when it is started up in OFFLINE mode.

8.2 STARTING UP THE BIT ONE SOFTWARE IN TARGET MODE - WARNINGS

1. When starting up the software, if it has been correctly interfaced to the PC (with software and drivers properly installed), the dialog window shown in section 8.3.1, will appear on the screen.

2. If you are using a computer equipped with a serial port, the software will perform a scan of the PC port looking for the bit One *(Fig.1).*

Fig.1

Fig.2

Then the PC will find the bit One connected to the "ACLink interface" *(Fig.2)*

- Click **OK** to start up the **TARGET** mode**;**
- Click **NEXT** to search again for the **USB port;**
- Click **CANCEL** to start up the **OFF LINE** mode**.**

3. If, once the scanning is completed, the bit One can not be found *(Fig.3)*:
- Check if the bit One is on (check if the Audison logo is lit up);
- Check if the USB cable is properly connected;
- Click **RETRY** to search again for the bit One;
- Click **CANCEL** to start up the **OFF LINE** mode.

Fig.3

8.3 TARGET MODE

In this case the bit One processor has to be connected to the PC and turned on, otherwise the software won't even show the TARGET entry as selectable on the start up window.

At this point you need to have in mind the system you want to realize beforehand, since from this moment if you want to change any of the settings you will have to go through the guided procedure all over again.

More specifically the guided procedure will ask for:
- Which main inputs you want to use (high or low level). Once you select your choice, auxiliary low level or digital sources can anyway be added. The guided procedure changes according to the selected choice.
- Which auxiliary inputs will be used (ex.: AUX1 or DIGITAL IN or PHONE etc.).
- Which kind of signals will be allocated to the different inputs (ex.: Front Left or Center or Subwoofer etc.).
- Which speakers you are using for your system (ex.: 3-way Front or stereo Sub or 2-way Rear etc.).
- If the system features passive crossovers managing speaker groups (ex.: 3-way system with active mid-low).
- If the system features any speaker connected through the ACLink.

The procedure starts automatically.

Screen image sequence

1. Guided procedure to set the desired car audio system.
Press **NEXT** to go on with the setting.
Press **CANCEL** to exit the program.

1

Screen image sequence

2. Selecting the inputs

- Select the main inputs (MASTER) type (Low Level or High Level) used. To change this setting later on, you will have to perform again the I/O Configuration Wizard guided procedure.
- Select among the available auxiliary inputs (AUX1 - AUX2 - S/P DIF - OPTICAL - PHONE) those that will be used. You can change this setting later on by selecting “Config / External Source” on the software main menu.

Press **BACK** to go back to the previous step.

Press **NEXT** to go ahead with the set-up procedure.

Press **CANCEL** to exit the program.

2

☑ High Level
section 8.5

☑ Low Level
section 8.4

8.4 SELECTING THE MASTER LOW-LEVEL INPUTS

1. How to set up the low-level inputs

An identifying name corresponding to the signal coming from the source can be assigned to any of the processor input channels (Ch1÷Ch6). The available names are: Front Left, Front Right, Rear Left, Rear Right, Center, Subwoofer. The bit One will use these names to assign the corresponding signal to the respective output.

Press **BACK** to go back to the previous step.

Press **NEXT** to go ahead with the set-up procedure.

Press **CANCEL** to exit the program.

1

2. How to calibrate the MASTER inputs levels

Follow the instructions as listed below:

- Insert the supplied disk:
  - insert the “Setup CD” if the head unit you are using is an AUDIO CD Player
  - insert the “TEST Signal DVD” if the head unit you are using is a Dolby Digital (AC3) “Audio Car Theatre 5.1” featuring analog outputs, or if it is an analog audio system featuring a central channel.
- Play track 1 (press Play);
- Set all tone controls to zero (0);
- Set balance and fader to centre (0);
- Adjust the head unit volume to the maximum undistorted output level.

Press **BACK** to go back to the previous step.

Press **NEXT** to go ahead with the set-up procedure.

Press **CANCEL** to exit the program.

Insert "Installation CD" in your vehicle's CD player. Play Track 1.
Set all tone controls to 0, set balance and fader to 0.
Turn CD player volume to the maximum undistorted..
Back
Next
Cancel

2

Remark: calibration is absolutely required to adapt the bit One inputs sensitivity to the signal coming from the source.

WARNING: the head-unit level must be elevated to the maximum undistorted level. If the head-unit level can not be tested in advance, bring the volume adjustment to approximately 80% of its maximum excursion. If the head-unit output level is set at a lower level the bit One will produce a ground noise (hissing sound). Should such noise come from the bit One during reproduction, you will have to repeat the calibration procedure this time at higher volume.

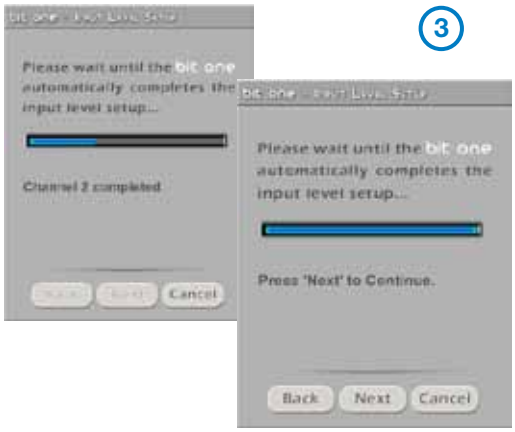
Screen image sequence

3. Automatic calibration

Through a real-time progress bar and specific messages the software shows how the procedure is being executed.

Once the procedure is completed, the window will show the message “Press Next to Continue”.

Press **BACK** to go back to the previous step.
Press **NEXT** to go ahead with the set-up procedure.
Press **CANCEL** to exit the program.


3
Please wait until the bit one automatically completes the input level setup...
Channel 2 completed
Cancel
Please wait until the bit one automatically completes the input level setup...
Press 'Next' to Continue.
Back
Next
Cancel

POSSIBLE ERROR MESSAGE

“Input level too low“

Should the procedure get interrupted during the calibration with the above message showing up, check if the signal or its level is present on the indicated corresponding channel.

Press **CANCEL** to log out the program.
Press **BACK** to go back to the inputs set-up *(see section 8.3.2)*.

4. How to select the speakers available in the system

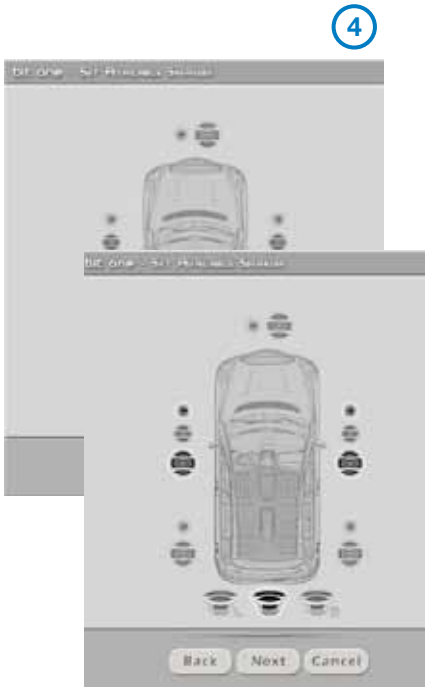
Speakers can be selected just by clicking on it.
If the left tweeter, left midrange or left woofer are selected, the software provides the ability to automatically activate also the right tweeter, right midrange or right woofer.
Once the software has been started up, this choice will affect the dedicated crossover type.

Ex.: if on the rear system only the woofers were activated, the software will show exclusively a low-pass or band-pass filter as available.

If you want to use a coaxial system as rear channel, both tweeter and woofer need to be selected and after that *(see point n. 5)* you need to enter that a passive crossover connecting one to the other is present in the system, so the software will show a high-pass filter as available.

Press **BACK** to go back to the previous step.
Press **NEXT** to go ahead with the set-up procedure.
Press **CANCEL** to exit the program.

From this point on follows a simulation of a system made up of:
- 3-way Front / - 2-way Rear / - 2-way centerl / - mono Sub. The bit One features 8 output channels. To multi-amplify each single speaker of the system 13 output channels would be required. In that case the software would automatically signal the limit.



Here it is how the bit One software shows the speakers selected in the system

Screen image sequence

5

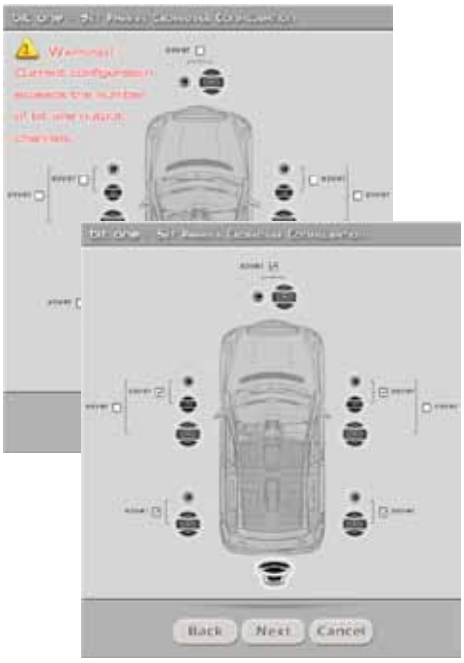
5. How to select passive crossovers for speaker groups

While carrying out the configuration of your system, you can also set the presence of passive crossovers managing speaker functional groups in complex systems.

Ex.: The 3-way Front can be managed as:
- multi-amplified (6 output channels would be required);
- passive mid-high speakers + separately amplified woofer (4 output channels would be required);
- 3-way passive (2 output channels would be required).

While performing the set-up, the software will automatically notify the return within the 8 output channel limit, the warning message will then disappear and the NEXT button will appear.

Press **BACK** to go back to the previous step.
Press **NEXT** to go ahead with the set-up procedure.
Press **CANCEL** to exit the program.



6

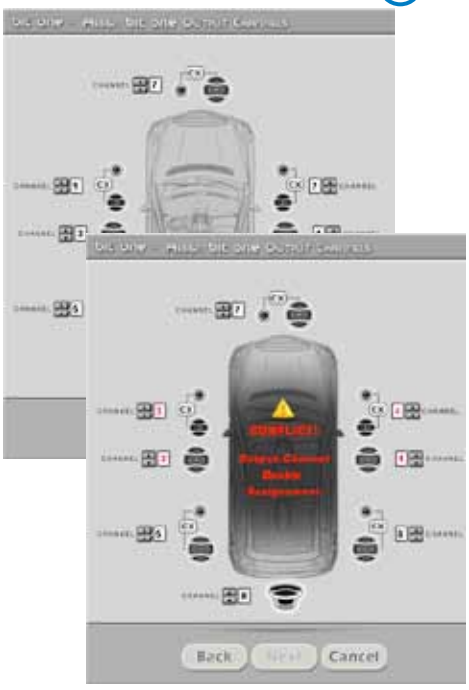
6. Processor outputs (Ch1÷Ch8) allocation

The bit One features 8 output channels. On this specific step of the procedure, any signal can be assigned to each output channel.

Ex.: the 1 and 2 outputs could be assigned to the rear channels just because with this setting the cables going to the relative amplifier would not need to be lengthened.

Due to a matter of convenience, if the output 1 is assigned to the left woofers, the software will automatically assign the output 2 to the right woofers. If during the procedure the output 1 is assigned also to the left mid-high speakers, the software will show a warning message. Change the allocation of one of the two numbers marked in red and the software will automatically select the first available channel.

Press **BACK** to go back to the previous step.
Press **NEXT** to go ahead with the set-up procedure.
Press **CANCEL** to exit the program.



Screen image sequence

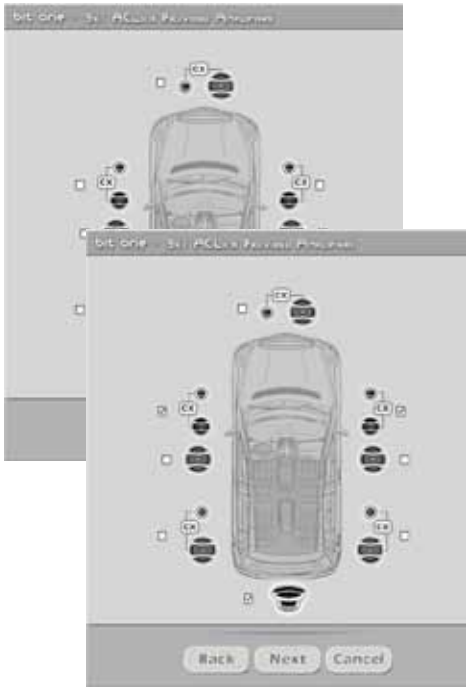
7

7. Selecting amplifiers connected through the ADLink / ACLink connection system

If the system features amplifiers provided with the ADLink digital input and you want to connect them with the system,you have to select them on this screenshot of the set-up procedure.

This means that the bit One will manage the corresponding outputs through the ADLink-OUT plug, managing the other outpust through the RCA-Pre OUT plugs.

Remark: keep in mind that you have to assign the corresponding Amp ID to the specific amplifier. The bit One will then automatically recognise the identified amplifier.



8

8. System configuration successfully completed

Stop playing the Test track, remove the supplied Setup CD or the TEST Signal DVD from the CD player of your head unit and then click **OK**.

Go to section 9

Remark: low level imput De-equalization

The bit One software provides the ability to de-equalize a Low Level signal. You have to connect the signal to the Low Level inputs and select on the bit One software the high level inputs as type of inputs used *(see section 8.3.2)*. Then proceed to the signal processing as indicated *from point 1 through point 7 of section 8.5*.

8.5 SELECTING THE MASTER HIGH LEVEL INPUTS

Screen image sequence

1. How to set up high-level inputs

1

You can assign to any of the processor input channels (Ch1÷Ch8) the identifying name corresponding to the signal coming from the source.

The available names are:
- Front Left Full / Tweeter / Midrange / Woofer;
- Front Right Full / Tweeter / Midrange / Woofer;
- Rear Left Full / Tweeter / Woofer;
- Rear Right Full / Tweeter / Woofer;
- Center Full / Tweeter / Woofer;
- Subwoofer.

The bit One will use these names to:
- Reconstruct a full range signal coming from an OEM source with a dedicated multi-channel amplifier;
- Assign the corresponding signal to the respective analog output of the head unit.

Press **BACK** to go back to the previous step.
Press **NEXT** to go ahead with the set-up procedure.
Press **CANCEL** to exit the program.

2. How to calibrate the MASTER input levels

1- Insert "Installation CD" in your vehicle's CD player. Play Track 1.
2- Set all tone controls to 0; set balance and fader to 0.
3- Turn CD player volume to the maximum undistorted.
Back
Next
Cancel

2

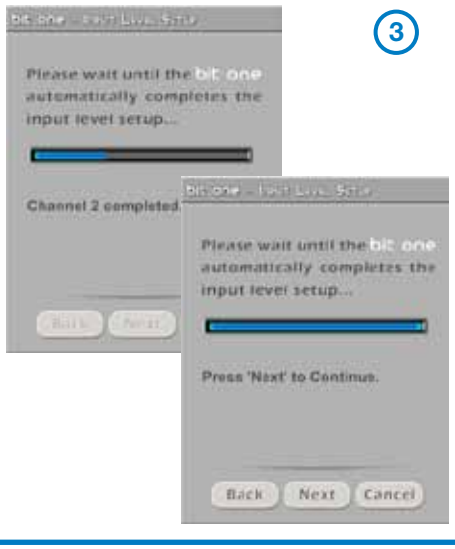
Follow the instructions as listed below:
- Insert the supplied disk:
- insert the "Setup CD" if the head unit you are using is an AUDIO CD Player.
- insert the "TEST Signal DVD" if the head unit you are using is a Dolby Digital (AC3) "Audio Car Theatre 5.1" featuring analog outputs, or if it is an analog audio system featuring a central channel.
- Play track 1 (press Play);
- Set all tone controls to zero (0);
- Set balance and fader to center (0);
- Adjust the head unit volume to the maximum undistorted output level.

Press **BACK** to go back to the previous step.
Press **NEXT** to go ahead with the set-up procedure.
Press **CANCEL** to exit the program.

Remark: calibration is absolutely required to adapt the bit One inputs sensitivity to the signal coming from the source.

WARNING: the head-unit level must be elevated to the maximum undistorted level. If the head-unit level can not be tested in advance, bring the volume adjustment to approximately 80% of its maximum excursion. If the head-unit output level is set at a lower level the bit One will produce a ground noise (hissing sound). If the bit One produces the same noise even during reproduction, you must repeat the calibration procedure.

3. Automatic calibration


Please wait until the bit one automatically completes the input level setup...
Channel 2 completed.
Please wait until the bit one automatically completes the input level setup...
Press 'Next' to Continue.
Back
Next
Cancel

3

Through a real-time progress bar and specific messages the software shows how the procedure is being executed.

Once the procedure is completed, the window will show the message "Press Next to Continue".

Press **BACK** to go back to the previous step.
Press **NEXT** to go ahead with the set-up procedure.
Press **CANCEL** to exit the program.

Screen image sequence

POSSIBLE ERROR MESSAGE

“Input level too low“

Should the procedure get interrupted during the calibration with the above message showing up, check if the signal or its level is present on the indicated corresponding channel.

Press **CANCEL** to log out the program.
Press **BACK** to go back to the inputs set-up *(see section 8.3.2)*.

4. OEM source de-equalization

4

Optional operation.

While setting up the high-level inputs you can take advantage of this function to use OEM sources, even if they were equalized to best adapt to the acoustics of the vehicle they are dedicated to.

The de-equalization process performs an analysis of the electrical frequency response coming from the different channels of the OEM source, automatically applying an equalization contrary to the original one, thus generating a linear signal, much more suitable to drive high-quality audio systems.

Regardless of the input channels used, the de-equalization will be performed for each functional group.

Ex.: even though you are using Front Left Full and Front Right Full as inputs, the software will perform the de-equalization also on the Rear, Center and Subwoofer as the processor will have to use the signals identified as Front to possibly also manage the outputs Rear, Center and Subwoofer.

Press **BACK** to go back to the previous step.
Press **NEXT** to go ahead with the set-up procedure.
Press **SKIP** to skip the de-equalization procedure.

5. Running the de-equalization procedure

5

If you decide to run the procedure, follow the instructions as listed below:

- Insert the supplied disk:
  - insert the “Setup CD” if the head unit you are using is an AUDIO CD Player;
  - insert the “TEST Signal DVD” if the head unit you are using is a Dolby Digital (AC3) “Audio Car Theatre 5.1” featuring analog outputs, or if it is an analog audio system featuring a central channel;
- Play track 2 (press Play);
- Set all tone controls to zero (0);
- Set balance and fader to center (0);
- Don’t change the volume level previously set through the inputs level automatic calibration;

Now switch the CD player to Track 2 and press "Next" button on this form.
During the process, please do not change volume on the source or disconnect any line.
Back
Next
Cancel

Press **BACK** to go back to the previous step.
Press **NEXT** to go ahead with the set-up procedure.
Press **CANCEL** to exit the program.

Screen image sequence

6. De-equalization

Through a real-time progress bar and specific messages the software shows how the procedure is being executed.

Once the procedure is completed, the window will show the message “Press Next to Continue”.

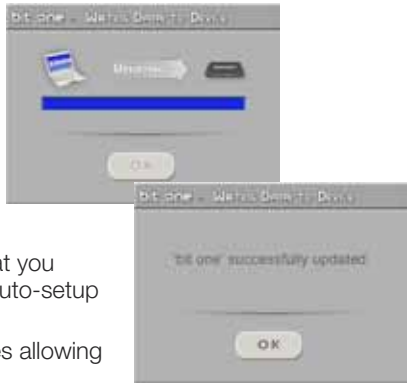
Press **BACK** to go back to the previous step.
Press **NEXT** to go ahead with the set-up procedure.
Press **CANCEL** to exit the program.

6
Please wait until the bit one automatically completes the De-Equalization process...
'Front Left' completed.
Please wait until the bit one automatically completes the De-Equalization process...
Press 'Next' to Continue.
Back
Next
Cancel

7. How to select the speakers of your system

From this point on the procedure is same as the one of the low-level inputs section.
(see section 8.4.4)

9. HOW TO SET UP THE BIT ONE WITH THE PC



Software Start Up

The software transfers to the processor main memory the settings selected during the guided procedure.

Once this operation is completed, a message confirming that the update has been done will be displayed.

Press **OK.**

If it is the first time that you connect your bit One to a PC, we recommend that you **FINALIZE** the bit One, to avoid losing the data stored when performing the auto-setup process *(see section 9.2.3)*.

The bit One now has proper basic setup. In the following chapters the features allowing acoustic tuning of the system will be detailed out.

WARNING:

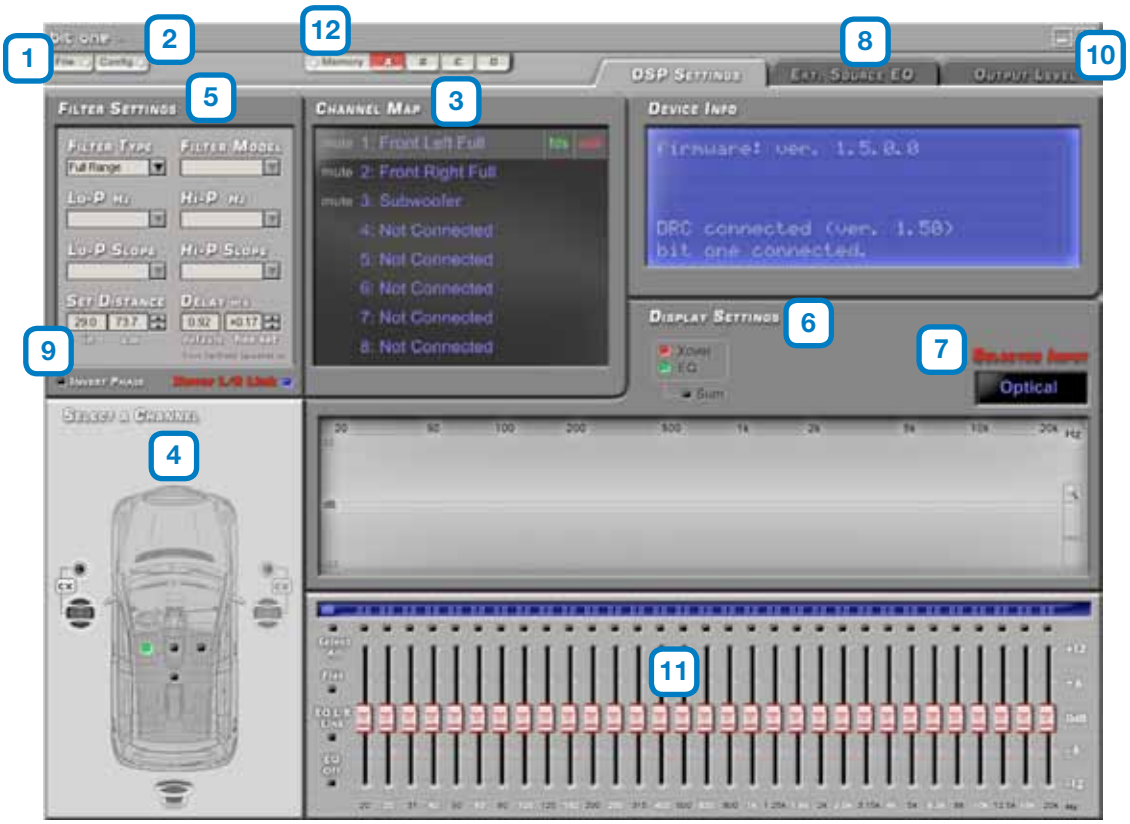
We recommend that you do not modify the settings of your bit One to explore its different features. Take your time to get familiar with the possibilities this software offers.

The settings you can set through the bit One have immediate effect on the signal and, if they have not been made with proper attention, they may result in damage to the speakers in your system.

If you decide to leave the amplifiers connected to the bit One, remember to perform the adjustments keeping the general volume at a level that does not damage the speakers in your system.

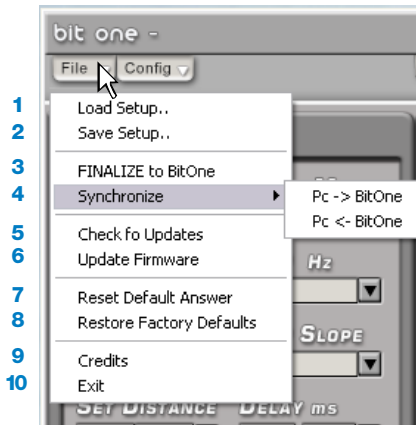
9.1 FEATURES

The following pages describe the bit One features that can be managed through the software.



9.2 MAIN MENU: "FILE" (1)

Clicking on the "File" tab a drop-down menu shows up listing the entries shown in the image on the right of the page:



1 Load Setup..: by selecting this entry, the bit One entire Setup is loaded from a previously saved file (*EX. "BitOneConfig1.bit"*). This feature is available both in **TARGET** and in **OFF LINE** mode.
In **TARGET** mode this feature lets you load again all the settings that have been previously saved. This feature is useful if you want to resume all the settings you have previously selected to install another bit One with the same settings, in order to test different acoustic setting.

WARNING: Files saved with firmware versions older than v. 1.5.0.0 can not be loaded into the bit One.

In **OFF LINE** mode this feature lets you view the features that you have previously saved to review them.

2 Save Setup..: it saves the bit One entire Setup in a file *(EX. "BitOneConfig1.bit")* that you can then load again inside the bit One in a second time through the "Load Setup" function. This feature is available both in **TARGET** and in **OFF LINE** mode.
You will be able to use the Setup you saved only with bit Ones where the same Firmware version is installed, or where firmware versions that are more recent than v. 1.5.0.0 are installed.

3 FINALIZE to bit One: it provides the ability to load into the bit One microprocessor internal memory all the settings that you selected while setting up your system. This function lets the bit One work without being connected to the PC.

When running the **Finalize to bit One** function, the software notifies you that the data entered in the bit One will be overwritten.

- Click **YES** to load the data set inside the bit One, overwriting the data that have been previously saved, if any.
- Click **NO** to interrupt the process.

WARNING: before disconnecting the bit One from the PC or each time that you exit the PC Software after modifying the system configuration always run the **Finalize to bit One** procedure.
If you do not follow these instructions all the data entered will be lost.

4 Synchronize, PC -> bit One or PC <- bit One:
Synchronize, PC -> bit One or bit One -> PC: these functions synchronize the PC with the bit One. If a dialog box like the one on the right of this page shows up, it means that for some reason communication between the PC and the bit One has been interrupted. To restore the communication click:

- **PC -> bit One.** The PC loads in the bit One the settings that have been so far selected.
- **PC <- bit One.** The PC loads in the PC Software the settings that have been previously stored in the bit One.

WARNING: this operation can not guarantee that the data are always retrieved.
If, once you have run it, the operation is not successful:
1. exit the bit One software;
2. turn the bit One off;
3. turn the bit One on;
4. launch again the bit One software.
By performing these actions, synchronization will be restored but the selected settings will be lost.

5 Check for updates: by connecting to the web site " http://update.audison.eu ", it checks if any software / firmware updates of the bit One or the DRC are present, to be able to update the bit One and DRC you are using *(see section 10.3.2)*.
To perform this operation, your PC has to be connected to the internet.

6 Update Firmware: you have to select it to update the bit One firmware *(see section 10.3.6)*.

7 Reset Default Answer: it restores the display of the warning messages if they have been disabled by unchecking "*Don't show me again*".

8 Restore Factory Defaults: it entirely resets the bit One back to its default settings, cancelling all the data previously saved in the bit One *(see section 10.3.11)*.

9 Credits: it shows the information about the bit One software in use.

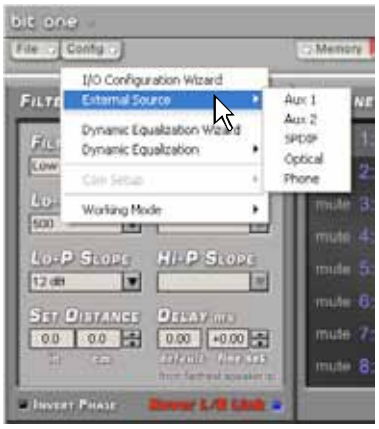
10 Exit: it exits the PC Software.

9.3 MAIN MENU: "CONFIG" (2)

If you click on the "Config" tab, a drop-down menu shows up listing the entries shown in the image on the right of the page:

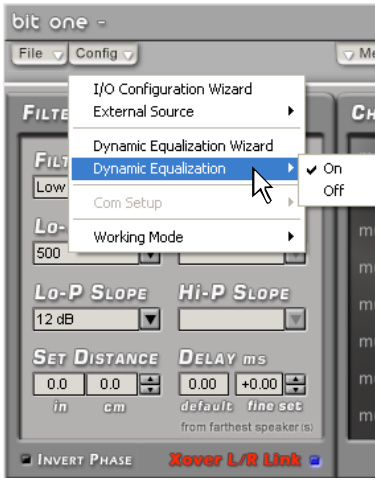
1 I/O Configuration Wizard: it provides the ability to perform a new auto-setup, taking the bit One to the conditions required to run this operation *(see section 8.3.1)*.

2 External Source: it provides the ability to enable or disable auxiliary sources that have not been or have been selected while performing the setup *(see section 8.3.2)*, without repeating the auto-setup operation *(see section 9.9.2)*.



3 Dynamic Equalization: if enabled, this feature provides the ability to improve the sound reproduction by actively acting on the variations of the frequency response when modifying the volume *(see section 9.13)*.

4 Dynamic Equalization ON/OFF: it provides the ability to enable or disabile the **Dynamic Equalization** *(see section 9.13)*.



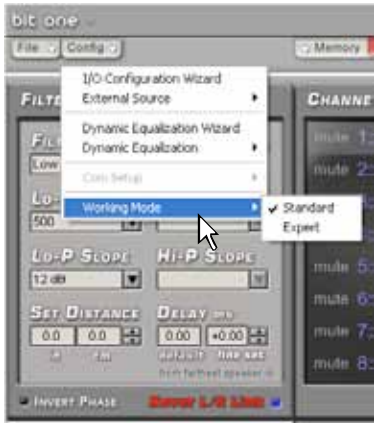
5 Com Setup: it provides the ability to view the list of the communication ports available in your PC and to manually specify the communication port that is connected to the bit One.

6 Working Mode: the software has two working modes available: **Standard** and **Expert**, acting on the crossover filter section.

The **Standard** mode features some restrictions easing in the use of the software *(see section 9.6)*.

The **Expert** mode does not feature any restrictions in the functions to use the software *(see section 9.6)*.

We suggest to try and use the software in **Expert** mode; if it is too difficult, change to **Standard** mode.



WARNING: when you change from one mode to the other, the crossover filters parameters are restored back to the default ones (Default).

9.4 CHANNEL MAP 3

CHANNEL MAP
mute 1: Front Left Mid-Hi
edit
mute 2: Front Right Mid-Hi
mute 3: Front Left Woofer
mute 4: Front Right Woofer
mute 5: Rear Left Full
mute 6: Rear Right Full
mute 7: Center Full
mute 8: Subwoofer

This window displays the identification names given to the eight output channels of the Bit One.

This window is active, you can click on it to manage each channel that, once selected, will show as highlighted.

If you keep the CTRL key pressed and click on another channel, this other channel will be selected and highlighted as well.

The software though will allow you to work on one single channel and will display the word EDIT in red next to the channel you can act on.

This way you can see on the graphics the response of all of the highlighted channels.

To act on another channel keeping your selection, click on the right hand of the desired channel, where the EDIT column is.

Multiple selection is only allowed for functional groups, except for the Subwoofer that can be selected with any group.

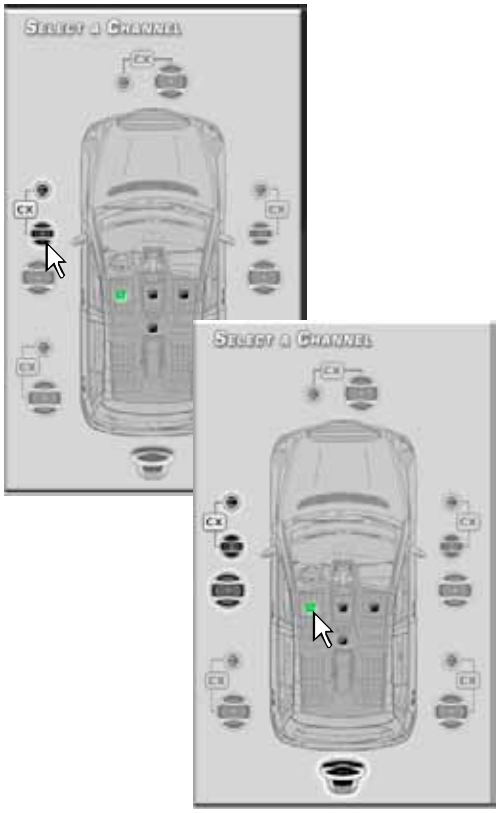
Ex.: Front Left Mid-Hi with Front Left Woofer with Subwoofer, but not with Rear Left Full or Center Full. If you want to check the Rear+Subwoofer system electrical response you have to de-select the Front system.

CHANNEL MAP
mute 1: Front Left Mid-Hi
mute 2: Front Right Mid-Hi
mute 3: Front Left Woofer
edit
mute 4: Front Right Woofer
mute 5: Rear Left Full
mute 6: Rear Right Full
mute 7: Center Full
mute 8: Subwoofer

This window also lets you set on MUTE each channel by clicking on the word MUTE on the left hand of the desired channel. If MUTE is on, the word gets highlighted in green.

You can also select a channel as shown in the image next to the following chapter 9.5.

9.5 SELECT A CHANNEL 4



This window is active. You can click on the speaker or on the speaker system to manage each single channel that, once selected, will show as highlighted.

If you keep the CTRL key pressed and click on another channel, this other channel will be selected and highlighted as well.

LISTENING POINT VISUAL INDICATOR

This window includes this function as well (selected in green) Four points are pre-set: **driver**, **passenger**, **front central** *(passenger driver)* and **rear central** for the relative passengers.

The indication acts only and exclusively as reference for the digital delay automated calculation *(see section 9.10)*.

If delays are set according to the “driver” position and then you want to optimize the system also for the “passenger” position, you need to set again the distances through the specific menu *(see section 9.10)*, as the system doesn’t update them automatically.

If used together with the pre-sets *(see section 9.10)*, it is useful to realize different setups according to the different listening points.

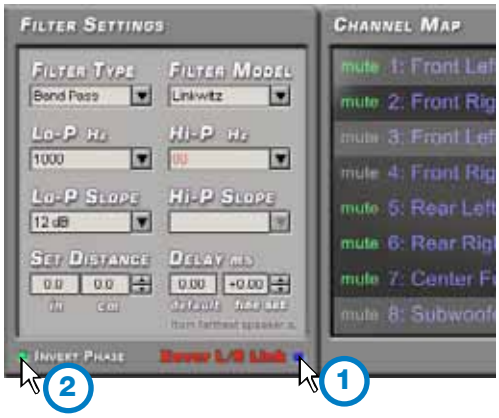
9.6 FILTER SETTINGS 5

The bit One runs eight crossovers, one per each output channel. Each filter allows the setting of the parameters related to the channel highlighted on the **Channel Map**.

1. **Xover L/R Link:** if this field is activated, the modifications applied to one of the channels (right or left) will automatically be applied also to the other one. To activate it click on the blue flashing light.

2. **Invert Phase:** it provides the ability to invert the phase of the channel under examination by 180°. It can be activated by selecting the green flashing light. This function can be useful to solve alignment problems among the different filtered channels.

3. **Filter Type:** it lets you selected the different types of filters that can be assigned to channels.
   Full Range
   Low Pass
   High Pass
   Band Pass



In STANDARD mode:

According to the speaker system selected during the set up, the filter type suitable for the used speaker will be available.

Ex.: For the Front Woofer only Low Pass or Band Pass will be available. For the Front Mid-Hi only High Pass and Band Pass will be available, etc.

In EXPERT mode:

Any speaker system selected has any filter type available.

STANDARD MODE

	Full Range	Low Pass	High Pass	Band Pass
Tweeter			x	x
Midrange				x
Woofer		x		x
Mid-Hi			x	x
Subwoofer		x		x
Full	x	x	x	x

EXPERT MODE

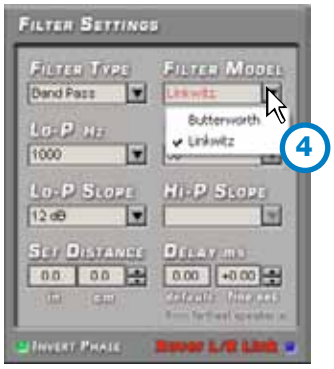
	Full Range	Low Pass	High Pass	Band Pass
Tweeter	x	x	x	x
Midrange	x	x	x	x
Woofer	x	x	x	x
Mid-Hi	x	x	x	x
Subwoofer	x	x	x	x
Full	x	x	x	x

WARNING: in this case pay the due attention to the filter adjustment. Speakers have mechanical limits that must not be exceeded and could lead to damage to the components.

4. **Filter Model:** it lets you select the type of filter that can be applied
   Linkwitz (default)
   Butterworth

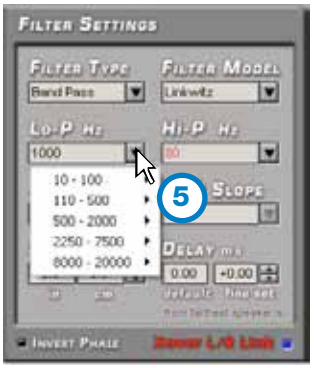
When launching the software, the bit One offers the Linkwitz as standard filter model. If you change it into Butterworth, the change will be applied only to the channel (mono) or channels (stereo - Xover Link enabled) you are working with.

Ex.: If you are adjusting the Front Woofer, the change will only affect this channel (right and left, if linked). If you selected Band Pass as filter type, this model will be applied to both the hi-pass and the low-pass.



80 - 1000 Hz 12 dB/Oct Linkwitz Band Pass Filter

80 - 1000 Hz 12 dB/Oct Butterworth Band Pass Filter



5. Cut-off frequencies

- **Hi-P Hz** 10 ÷ 20000: filtro High-Pass
- **Lo-P Hz** 10 ÷ 20000: filtro Low-Pass

You can select the cut-off frequency by:

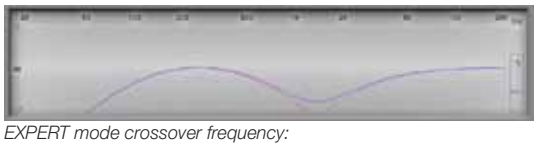
- clicking on the corresponding drop-down menu, selecting the frequency range and the value;
- clicking on the corresponding drop-down menu, selecting the frequency range and then moving from value to value with the arrows controls (up / down) on the PC keyboard;
- clicking on the corresponding drop-down menu and then moving from value to value with the use of a mouse featuring a rotating finger wheel.

In STANDARD mode the crossing frequency among speakers of the same front is bound.
It is however free if among different fronts.

Ex.: If you change the Front Woofer low pass cut-off frequency, also the Front Mid-Hi hi-pass cut-off frequency will automatically change.If you change the Subwoofer low-pass cut-off frequency, instead, the Front Woofer hi-pass cut-off frequency won't change.

STANDARD mode 1000 Hz crossover frequency

In EXPERT mode the crossing frequency among speakers of the same front is free, meaning that open cuts can be created.



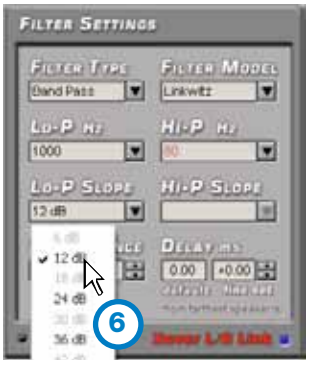
EXPERT mode crossover frequency:
-Low Pass 750 Hz - High Pass 2500 Hz

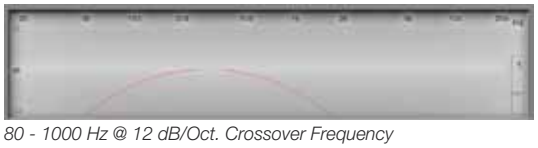
6. Filter slope

- **Hi-P Slope**
  12/24/36/48 dB/Oct. (Linkwitz)
  6/12/18/24/30/36/42/48 dB/Oct. (Butterworth)
- **Lo-P Slope**
  12/24/36/48 dB/Oct. (Linkwitz)
  6/12/18/24/30/36/42/48 dB/Oct. (Butterworth)

When starting up the software, the bit One offers Linkwitz with 12 dB/oct slope as default slope. By changing the slope, the change will be applied only to the channel you are working on.

Ex.: If you are adjusting the Front Woofer, the change will affect only that channel (right and left, if linked). If you selected Band Pass as filter type, the slope will be applied to both hi-pass and low-pass.





80 - 1000 Hz @ 12 dB/Oct. Crossover Frequency

80 - 1000 Hz @ 36 dB/Oct. Crossover Frequency

80 - 1000 Hz @ 24 dB/Oct. Crossover Frequency

80 - 1000 Hz @ 48 dB/Oct. Crossover Frequency

9.7 DISPLAY SETTINGS 6

You can view the electrical response of the output channel you are acting on through the display. If multiple channels are selected, the display will show the electrical response of all the channels, showing the "active" channel highlighted in red and the other channels selected in gray.

The displays shows frequencies from 20 to 20000 Hz in a +24 a -24 dB width range. The default resolution is set to ±12 dB, but on the right hand a zoom control can be found, to change resolution. After changing resolution, to go back to the default one you have to double click within the zoom bar area.

The Display Settings offers the possibility to display:

1. a red line for the electrical response under crossover filtering action (Xover) *(Fig.1)* by clicking with the mouse on the **Xover** box;
2. a green area for the electrical response under equalization (EQ) *(Fig.2)* by clicking with the mouse on the **EQ** box;
3. a blue line for the overall electrical response of the system, when multiple channels are selected *(Fig.3)* by clicking with the mouse on the **Xover** and **EQ** boxes;
4. a blue area for the resultant of the sum between the filtered electrical response and the equalized one (SUM) *(Fig.4)* by clicking with the mouse on the **SUM** box. In this case the red line and the green area are hidden.

During the setup process, the display shows in real time the changes applied to the electrical signal that is sent to the speakers through the amplifiers. The audio signal actually reproduced by the system depends on the type of speakers used and on their position. To analyse the acoustics response, use a spectrum analyzer connected to a microphone. Otherwise, you can rely on your experience in audio reproduction.

Fig.1

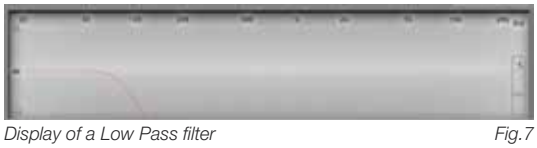
Fig.2

Fig.3

Fig.4

Display of a High Pass filter *Fig.5*

Display of a Band Pass filter *Fig.6*


Display of a Low Pass filter *Fig.7*

Display of a Mid-Hi + Woofer + Sub system *Fig.8*

9.8 SELECTED INPUT 7

The window "Selected Input" will show the source that is active while the bit One is connected to the PC. The source can be changed by clicking on the **Ext. Source EQ** tab on the top, selecting the desired source *(see section 9.9)*.

Once the bit One has been disconnected from the PC, you will be able to select the bit One input source through the DRC *(see section 12)*.

9.9 EXT. SOURCE EQ 8

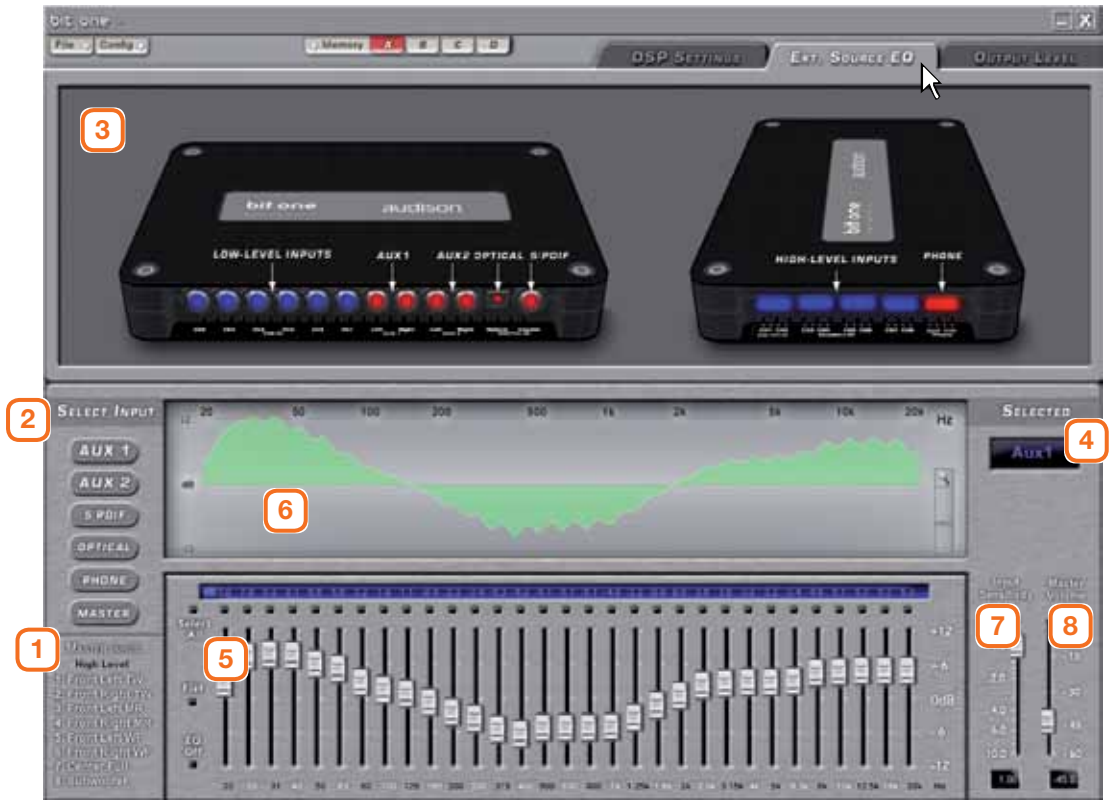


Fig.1

This section shows all the functions of the bit One input sources as displayed by the software. Following please note the description of each of the points marked with the numbers as per the above image:

1 Tab showing the typology of system previously set with MASTER input (High/Lo-Level). It also lists the selectable channels.

2 The “Select Input” section shows a list of buttons corresponding to the inputs that have been selected during the product setup.
If you click on the button of an input, that input will become active and the bit One will reproduce the sound that is applied to that input. Also, the selected input automatically lights up in the two bit One images on the top. See point n. 3.
If during the setup no external sources have been selected, they can be added or removed as follows: select the “Config / External Source” menu *(see Fig.1)*, then select or deselect the desired source.

3 The top window shows the bit One inputs graphically.
If you click on the input selected during the bit One setup, that input will become active and the bit One will reproduce the sound that is applied to it.

4 This window shows the bit One input active source.

Fig.2

Example of equalization dedicated to the PHONE input

5 This window shows a 31 band graphic equalizer for each source AUX1 / AUX 2 / PHONE / OPTICAL S / PIDIF; it provides the ability to equalize the auxiliary sources on the input. In order to know how this equalizer can be used, see section 9.12.

6 This window shows the equalization applied to the selected input signal.

7 You can adjust the input sensitivity for the AUX 1/ AUX 2 (0,3 ÷ 5V RMS) and PHONE / OPTICAL (0,6 – 10V RMS) by moving the slider.

8 You can adjust the system general volume to best perform adjustment operations by moving the slider.

9.10 SET DISTANCE AND DELAY 9

This setting is based on an automatic system allowing to calculate the time the speaker sound takes to get to the listener's ear *(Fig.1)*.

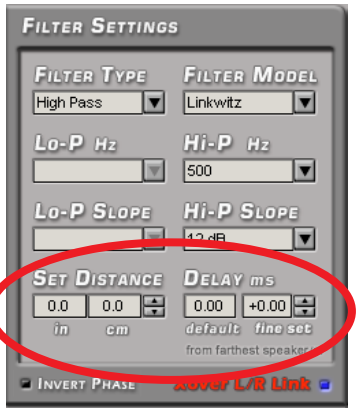


Fig.1

Preliminary remarks

Sound moves through the air at a speed of 343 mt/sec (1.125 ft/sec) and at the temperature of 20°C (68°F).

If you know the distance from the sound emission point, you can then calculate the time sound takes to get to the listener's ear.

If you set the distances of the different speakers in your system, the bit One automatic system will change them into time (ms - milliseconds). It does not assign the delay (0,0 ms) to the farthest speaker (usually the Subwoofer) while it assigns progressively growing delays as much as the other speakers position get closer to the listening point, in order for all the emission points to reach the listening point at the same time.

SET DISTANCE
It lets you set the distance between the interested speaker and the listening point. Choose *cm* (centimetres) or in (inches).

DELAY ms/default
It displays the time in ms (milliseconds) calculated according to the distance.

DELAY ms/fine set
The calculation system of the bit One time delays lets you also perform a manual fine-adjustment.

Preliminary remarks

Fine set and Phase Delay

The delay assignment according to the distance calculation is theoretical. That is, small variations need to be applied due to small errors in distance measurement, due to the back-wave reflections inside the car compartment and, mainly, due to the speaker phase problem.

Two speakers reproducing two areas of frequency one close to the other (ex. Woofer and Midrange), in their crossing area will simultaneously reproduce, at attenuated level, the same frequencies.

Due to the different nature of the speakers, they will show a difference in phase that, for a short frequency interval, works like a time delay.

*By acting on the "***fine set***" you can partly also correct problems of* **Phase Delay***.*

By acting on the **"fine set"** you can change the automatically set time delay.The delay that is varied adds up to (+ x.xx) or is deducted from (- x.xx) the value of the delay shown in the **"Delay / default"** window, that does not change the assigned value that is the one automatically assigned. If you assign a positive value (+ x.xx) with the **"fine delay"** it means to increase the delay of that speaker and so to take it further distance from the listening point.

Likewise, assigning a negative value (- x.xx) means to decrease the speaker's delay and therefore to move it closer to the listening point.

In order for you to view how much the **“fine set”** has been manually changed to see the resulting, actually applied to the output, delay value, you have to calculate the algebraic sum of the value shown in the **“DELAY / default”** and **“DELAY / fineset”** boxes.

The negative value (decreasing the delay) can not be assigned to the farthest speaker; it can only be assigned to the other speakers as they are all already delayed compared to the farthest one.

If you try and give a negative value to the farthest speaker, an alert message will show *(Fig.2)*.

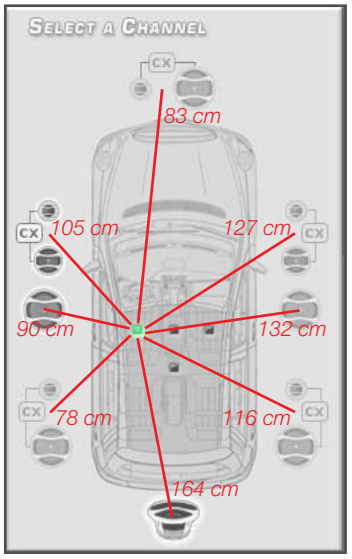
Fig.2

By acting on **“fine set”**, the word **“fds”** will light up on the corresponding channel of the **“Channel Map”** *(Fig.3)*.

Fig.3

EXAMPLE OF TIME DELAY SETTING (Fig.4):

1. Choose the system listening point.
   To identify the listening point, choose an ideal point located at the centre of the listener’s (driver or passenger) head.
   For the front central point and rear central point choose an intermediate point between the two listeners.
2. Measure the distance between each loudspeaker or group of loudspeakers and the listening point in a straight line (“as the crow flies”).
   For each loudspeaker choose the centre of the mobile membrane as the emission point.
   For the groups of loudspeakers choose an intermediate point between them. Then, it will be possible to perform the fine tuning by selecting the **Fine Set** function.
3. Select the channel related to the loudspeaker under exam on the **Channel Map** and enter the respective distance value on the **Set Distance** box from the **Filter Setting** menu.
4. Repeat step 3 for each channel.
5. Perform all the time delays settings, start the music reproduction and select the **Fine Set** box.
   If you move the values in positive or negative (except for the subwoofer in Fig.4 it is the farthest speaker), you can find the best time alignment that will ensure a correct acoustic scene.
   It is advisable to listen to different types of musical tracks (percussions, melodic etc.) for a much more correct evaluation of the different musical instruments coherency (space stability).
6. Once the time alignment procedure is completed, you can operate on the output equalizer (Master).
   You can refer to section 9.12 to optimize the system response in accordance with the level alignment to the different frequencies.



Real distances measured in relation to the listening point

Fig.4

Remark: the measurements for the above operations can also be taken by using a spectrum analyser featuring an appropriate microphone. The result must be assessed with final refining listening tests.

Fig.5

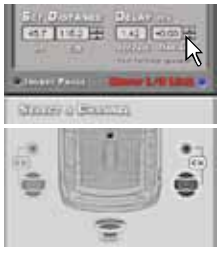


Fig.6

WARNING: if, once you have set the distances comparing to the “driver” listening point you click on the “passenger” listening point, the bit One won’t re-calculate the delays compared to the new reference point because the buttons available in the SELECT A CHANNEL diagram are merely descriptive and their only purpose is to remind you that you have set the delays for that listening point!

9.11 OUTPUT LEVEL (10)

This section shows the settings of the output levels of the bit One channels as displayed by the software. Following please note the description of each of the points marked with numbers in the image below.

(1) When "**Clip**" lights up, it indicates the clipping regarding the output channel. When this occurs, you will just have to decrease the output level of the corresponding channel or decrease the equalization previously entered.

(2) By acting on one of the sliders belongings to the output channels, you can adjust the output level (- 40 ÷ 0 dB) for each channel.

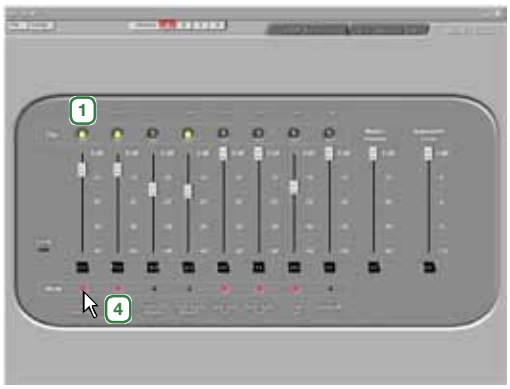
(3) This area of the screen shows the output level of each single channel (- 40 ÷ 0 dB), compared to the slider position of the output channels.

(4) If you click on the **"Mute"** button, you can mute the corresponding output channels. If you click again on the **"Mute"** button, the mute function will be disabled.

(5) If you click on the **"Link"** button, you can simultaneously adjust all the bit One output levels. If you click again on the **"Link"** button, the function will be disabled.

(6) By acting on the **"Master Volume"** function, you can adjust the system general volume (-60 ÷ 0 dB).

(7) By acting on the **"Subwoofer Level"** function, you can act on the subwoofer output level adjustments (-12 ÷ 0 dB), if the system features a subwoofer.



(1) *Example of Clipping Alarm Ch2, Ch5, Ch6, Ch8*

(4) *Example of enabling is "Mute" function on Ch1, Ch2, Ch5, Ch6, Ch7 channels.*

Note: if the installation includes a mono Subwoofer, the sensitivity of its dedicated amplifier needs to be increased by +3 dB compared to rest of the amplifiers (see the chart Amplifiers sensivity).
This empirical method considers many aspects and will provide an improved adjustment capability of the "**Subwoofer Level**"!

Amplifiers Sensitivity (Volts)

Front/Rear	1.0	2.0	3.0	4.0
Sub (+3 dB)	0.7	1.4	2.1	2.8

WARNING: the output level adjustment (2) affects the system signal / noise ratio (**whistle / background hiss**). We recommend that you always set the bit One output level at high level and the amplifiers' sensitivity at low level, so the amplifiers will be less affected by noises / background hisses.
Unfortunately, a too high output level makes the clipping LED's turn on (1), especially if equalizations with high gain are applied. Therefore we recommend that you proceed as follows:

a) Adjust the amplifiers sensitivity level at the minimum (3-4V RMS).
b) Balance the emission level of the system channels by moving the cursors (2) paying attention to maintain a mid level centred at around -20 dB. Turn the output volume to an acceptable listening volume level.
c) Set the desired output equalizations *(see section 9.11)*.
d) Insert a CD playing a highly dynamic track.
e) Select the "**Link**" function (5), move the cursor and increase the output channels level until one of the "clipping" LEDs turns on (1); move the cursor back of at least 2-3 dB (check the value on one of the displays (3).
f) Increase the "**Master Volume**" (6) up to the maximum undistorted level taking it close to "0" dB.
g) In case the signal is highly distorted with the "**Master Volume**" at "0" dB, you will have to decrease the output levels (2). If, on the contrary, no distortion occurs, you will have to increase the amplifiers' sensitivity until the first distortion symptoms show: by doing this, you will make the most of all the available power.

Remark: This procedure leads you to set the system at "zero dB undistorted". This is not always the best solution, since, if you listen to a track that has been registered at a lower level or with lower dynamics than the track used for the setup, a loss in dynamics may happen. So a good compromise needs to be found, depending on the listener.

9.12 GRAPHIC EQUALIZER (11)

The bit One software features 31-bands, ± 12 dB graphic equalizer for each system channel. In compliance with the ISO requirements, frequencies are equally spaced at 1/3 Oct. from 20 to 20kHz.

The equalizer works according to the chosen functioning mode. So we will have:

- one equalizer for the Front;
- one equalizer for the Rear;
- one equalizer for the Center;
- one equalizer for the Subwoofer.

Es.: if examining the system so far described there would be:

- one equalizer for the Front Mid-Hi;
- one equalizer for the Front Woofer;
- one equalizer for the Rear;
- one equalizer for the Center;
- one equalizer for the Subwoofer.

In order to change the equalizer parameters to set an equalization curve, you just have to select the channel you want to equalize from the **"Channel Map"** menu, place the mouse on the slider you want to set by left-clicking on it with the mouse.
To shape an equalization curve you will just have to place the cursor of the mouse on the first slider on the left of the equalizer, right-click with the mouse moving on the equalizer sliders towards the right shaping the curve as you like *(see Fig.1)*.

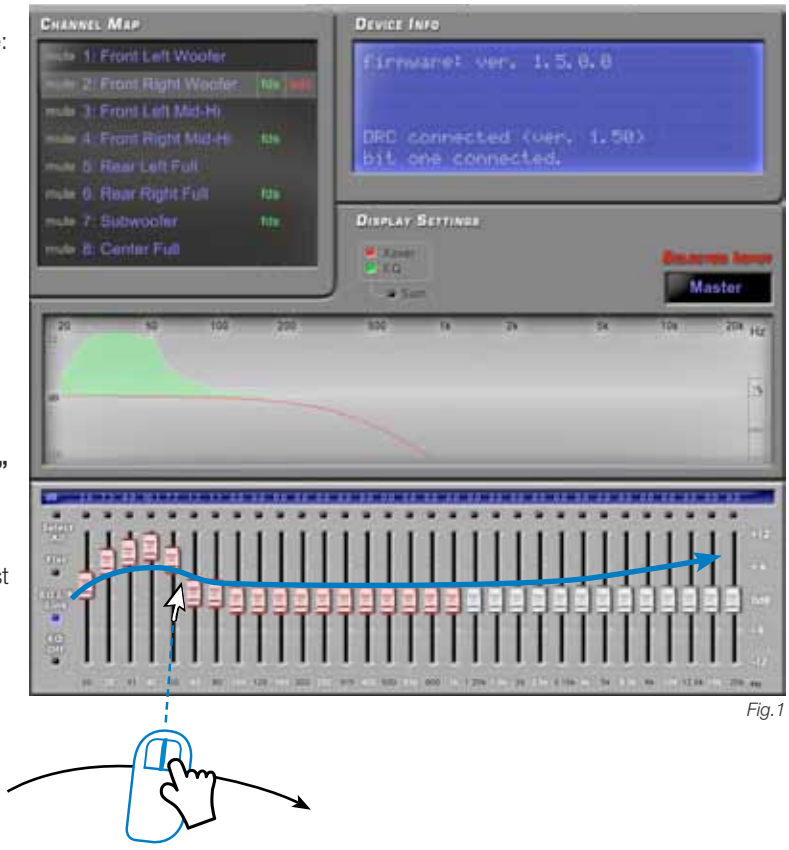


Fig.1

The graphic equalizer features four specific functions helping with and easing the adjustments *(see Fig.2)*:

1. **Select All** once the equalization curve has been set, it provides the ability to move all the cursors at the same time;
2. **Flat** it brings all the cursors back to 0 dB position;
3. **EQ L/R Link** when active, it applies the equalization curve both to the right and the left channel simultaneously;
4. **EQ Off** when active, it provides the ability to disable the equalizer to check its effect without losing the settings;
5. one **"select"** button for each equalizable band providing the ability to move all the selected cursors all together.

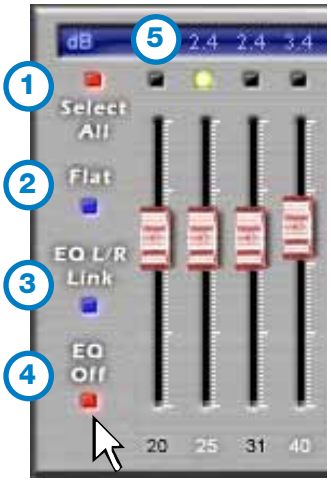


Fig.2

9.13 DYNAMIC EQUALIZATION WIZARD

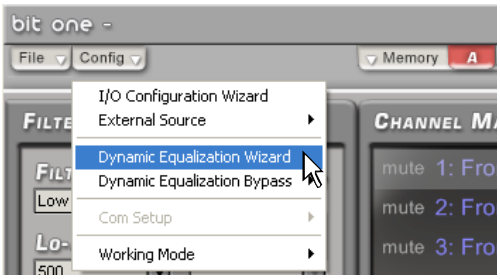


Fig.1

The sound of an audio system varies according to its reproduction volume. At low volume the noise coming from the outside of the car along with the particularly sound-damping acoustics of the car compartment contribute to limit *(especially in low frequency)* the system performance. Generally speaking while adjusting the system you need to take into consideration that the adjustments performed at low level volume will necessarily change when turning up the volume.

The Dynamic Equalization improves the listening impression by positively affecting the variation of the frequency response when volume varies.

The Wizard will offer a set of screenshots to set the equalization to apply on the general frequency response.

The bit One will automatically perform a gradual interpolation of the data, following the signal level and so acting according to the system listening volume.

Two operational modes are available:

1. EASY MODE

Insert a CD into the head unit and play a reference musical track.

Select the operational mode by clicking on Easy.

A semi-automatic procedure starts up.

Fig.2

Move the volume cursor by setting the listening reference level to a low volume.

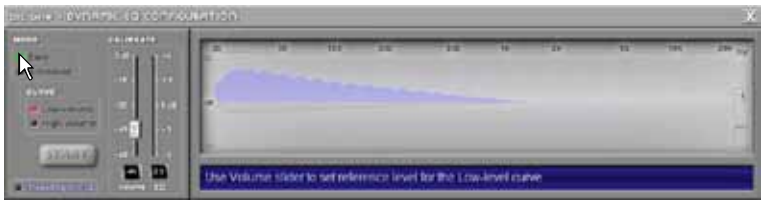


Fig.3

After adjusting the cursor, press the START button.

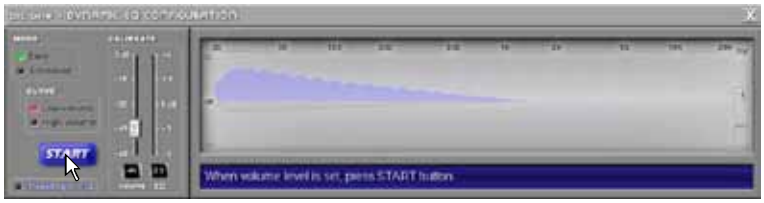


Fig.4

Move the EQ cursor to tune the equalization of the low volume response until you get the desired sound. In this case the equalization curve that will be entered is pre-set.

Once you have found the right adjustment press the SAVE button.

Now the reference curve for a low volume listening level has been entered.

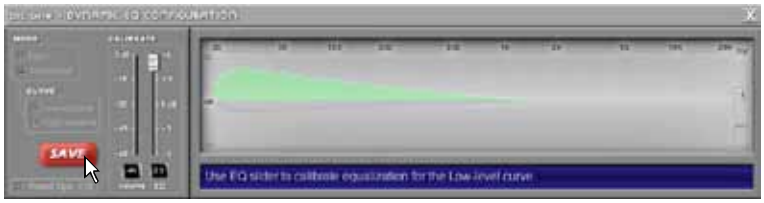


Fig.5

The semi-automatic procedure continues requesting to set the reference listening volume level to high. Set the Volume cursor adjusting it at the desired level.

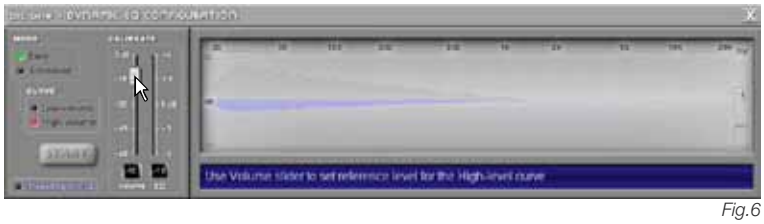


Fig.6

Once you have adjusted the cursor, press the START button.

Fig.7

Move the EQ cursor to tune the equalization of the high volume response until you get the desired sound.

Once you have found the right adjustment press the SAVE button.

Now the reference curve for a high volume listening level has been entered.

Fig.8

To confirm the adjustments and enable the Dynamic Equalizer while listening to the music click on the **X** *(Fig.9)*.

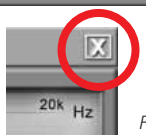


Fig.9

After enabling the **"Dynamic Equalization"**, the **"Dynamic Equalization ON/OFF"** provides the ability to turn on (ON) or off (OFF) the acoustic effect of the equalization while listening to music *(Fig.10)*.

The **"Dynamic Equalization ON/OFF"**, useful while adjusting the system through the PC, is also available on the DRC *(see section 12.2)*.

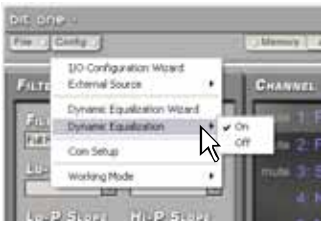


Fig.10

2. ADVANCED MODE

In this mode the equalization curve is not fixed but it can be selected through a 31-band graphic equalizer.
The steps to adjust it are exactly the same as those described so far, adding to them the possibility of operating with a custom curve.

Just for example on your right you can see the main screenshot showing a "custom" equalization.

Fig.11

To confirm the adjustments and enable the Dynamic Equalizer while listening to the music click on the **X** *(Fig.9)*.

After enabling the **"Dynamic Equalization"**, the **"Dynamic Equalization ON/OFF"** provides the ability to turn on (ON) or off (OFF) the acoustic effect of the equalization while listening to music *(Fig.10)*.

The **"Dynamic Equalization ON/OFF"**, useful while adjusting the system through the PC, is also available on the DRC *(see section 12.2)*.

Reset Dynamic EQ

While adjusting the system, you can press the Reset Dyn. EQ button to check in real time the modifications the Dynamic Equalization applied to the signal to disable the equalization curve introduced by the **"Dynamic Equalization Wizard"**.

9.14 MEMORY (12)

The bit One manages the system set up working on Preset **A** by default; however, it also offers the possibility to store and recall four Presets **(A, B, C, D)**.

Pressing the MEMORY button on the main menu you access to the different functions you can perform on the featured presets.

The following features are available:

- Load All Presets: it loads all the memories (A/B/C/D) from a file previously saved (.prs format);
- Save All Presets: it saves all the memories (A/B/C/D) in a file that can be recalled (.prs format);
- Load Current Preset: it loads a memory previously saved (.pro format) by placing it on the memory you are operating on;
- Save Current Preset: it saves the memory you are operating on in a file that can be recalled (.pro format);
- Copy Preset From: it provides the ability to copy the content of one memory into another memory;
- Current Preset Default: it restores the crossover and equalization default values, that would be proposed at the end of the set up procedure.

The following data will be stored into the presets:

- the filter settings for each channel;
- the time delay settings for each channel;
- the equalization settings for each channel;
- the output levels of each channel;
- listening points markers.

We recommend that you copy the parameters entered in the preset you are using into the presets that are not being used.

The presets can be recalled through the DRC. If some presets are not stored, they will store the Default settings.

WARNING: The following data will not be stored into the memories:
- the selected MASTER inputs;
- the selected output channels;
- the equalizations on the external source input signal (if entered);

Since these data refer to the bit One Setup and they are not supposed to change during the tuning process.

10. TROUBLESHOOTING

10.1 SYNCHRONIZATION WITH THE PC

1. bit One functioning problems

- If, while tuning the system with a laptop PC connected to the bit One, the device shows some functioning problems, try to disconnect the laptop PC power supply cable. This way, with the laptop PC working on battery power, you avoid a possible voltage difference in USB ground connection between car ground (bit One) and earth (PC).

2. bit One does not connect to PC software

- If, while tuning the system with the PC connect to the bit One, the device is switched off and then on again, the connection is lost and the software can not "finalize" the selected setup. If you don't want to lose the modifications and setup previously selected, proceed as per the following steps:
  a- save the setup as a file on the PC using the function: FILE / SAVE SETUP;
  b- exit the software;
  c- turn on the bit One;
  d- launch the software again;
  e- load again the setup file using the function: FILE / LOAD SETUP.

3. bit One does not respond

- If, while tuning the system with the PC connected to the bit One, the device does not respond, proceed as per the following steps:
  a - turn the bit One off:
  - pushing the DRC knob, or
  - disconnecting the Remote IN, or
  - disconnecting the power supply cable for few seconds;
  b - save the setup as a file on the PC using the function: FILE / SAVE SETUP;
  c - exit the software;
  d - turn on the bit One;
  e - launch the software again;
  f - load again the setup file using the function: FILE / LOAD SETUP.

4. Settings not stored

- In order to successfully complete the bit One set up phase and not to lose the work done, remember to store the selected settings. Select "File" from the management software menu via the PC and then choose "Finalize to bit One".

10.2 BACKGROUND NOISE

Loud whistle /background hiss

In case a loud whistle / background hiss can be heard, it may be necessary to repeat the input sensitivity auto-setup and / or to rectify the output levels adjustment. *For more information, see sections 8.4.2, 8.5.2 and 9.11 in this Manual.*

10.3 RESCUE MODE

If, when launching the bit One PC software the following Warning window appears, you can choose between the following two ways to proceed:

A - Use a previous version of the PC software. Example: if you are using the PC software v. 1.5, open the v.1.3;

B - Update the bit One Firmware.
In this second case you will have to proceed as follows:

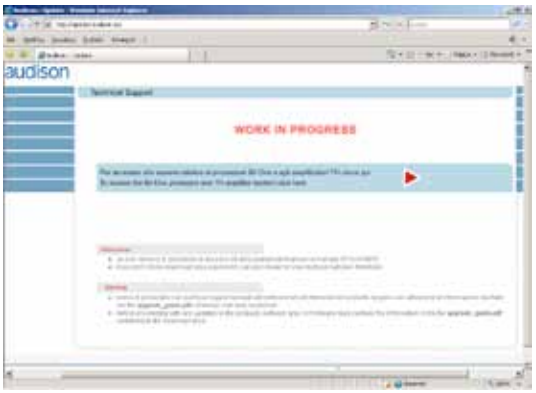
- Save the previously set setup (in case you want to open it in OFF LINE mode);
- Press OK on the Warning window;
- Restart the bit One PC software and select the RESCUE MODE;

1. The first screen will show the Firmware version currently installed in the bit One providing the ability to access to the menu / the update functions;

2. Select the entry “Check for Updates” from the “File” menu; the internet browser installed in your PC will open up and it will automatically search for the *URL: http://update.audison.eu;*

WARNING: you have to manually download the files from the above website. The method to access the software may differ from the one described hereafter. Please, always follow the instructions you can find in the website.

3. Once the website page has opened up, click on the LINK (red arrow);



4. To access the Download Area where the updated versions of Installation Guide, Advanced Manual, Software and Firmware are available for download, you have to enter the word **bitone** in both the LOGIN and PASSWORD box;

5. Look for the most updated file showing the word **firmware** followed by four numbers and click on its specific symbol to start the download. When requested, save the file in your PC;

6. Select the entry “Update Firmware” from the “File” menu; the software will ask you to select the file that you have just downloaded from the Download Area or that you previously saved in your PC.

WARNING: to secure the Firmware updating procedure, disconnect, if any, the PHONE terminal block from the bit One plugs.
The firmware update procedure requires particular attention. So, it must be performed under the best possible conditions: if the firmware update is launched but prematurely interrupted (for example, because the PC locks up or the USB accidentally disconnects during the update), you need to contact our Customer Service for further support as the DRC memory reprogramming may be necessary.

7. Before starting the bit One update, the software will offer the following warnings:
- do not disconnect “bit one” device, unplug power or terminate this application during updating process;
- disable standby and energy saving features;
- close all running applications;
- disable anti-virus and anti-spyware systems.

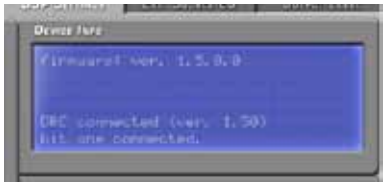
WARNING!
Do not disconnect 'bit one' device, unplug power or terminate this application during updating process.
Disable standby and energy saving features.
Close all running applications.
Disable anti-virus and anti-spyware systems.
OK
Cancel

8. Once you have clicked “OK”, the bit One Firmware update starts. The updating process will last from 3 to 5 minutes and the green progressing bar will prove the update correct processing.

WARNING: if during the updating process the progressing bar stops for few seconds, it is normal. Do not interrupt the process in any way.

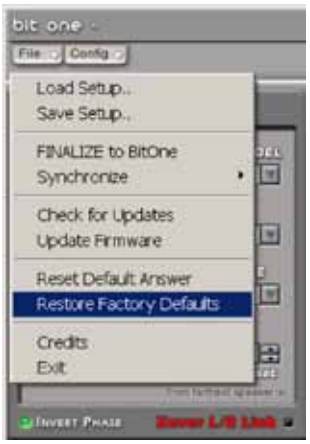
9. Once the update has been successfully completed the window you can see on your right will appear. To use the bit One again, you have to exit the software through the PC, turn the bit One off and start it all again.

10. Launch the PC software still in RESCUE MODE.
If the firmware update has been correctly completed, the dialog box will show the following indications:
- new bit One Firmware version (v. 1.5.0.0);
- new DRC Firmware version (v. 1.50).



REMARK: If the DRC Firmware is not displayed or if an older version than v. 1.50 is displayed, we recommend that you update the DRC Firmware.

11. At this point you have to reset the settings, by selecting the **“Restore Factory Defaults”** entry from the “File” menu *(see section 9.2.8)*.



12. A Warning window will show up asking confirmation about resetting the settings. Click **“YES”.**

13. Exit the program, by clicking on ; then turn the bit One off.

This action resets all current settings Are you sure?
YES
NO
This wizard will guide you through the steps to configure your bit one device..
Next
Cancel

14. Turn the bit One on. Launch the bit One PC Software v. 1.5 and proceed clicking on **“Next”**, following the standard setup and inputs/outputs setting procedure *(see section 8)*.

15. If necessary, manually reload the settings of filters, delays and equalizations that you previously wrote down, or load again the previously saved setup through the **Load Setup** function.

11. STARTING UP THE BIT ONE SOFTWARE IN TARGET MODE IN FINALIZED BIT ONES

Should you need to reconnect the software to any set up processor, you won't need to repeat the steps described in the guided set up procedure.

These operations will be repeated only if you want to set the bit One processor with a system of inputs/outputs different from those available in the bit One memory.

After selecting the Target mode, the software will display the following window notifying the data transfer from the bit One to the PC.

12. DRC - DIGITAL REMOTE CONTROL

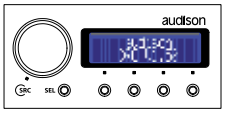
The DRC is the bit One remote control system. It is a microprocessor digital system; it controls and monitors also the amplifiers equipped with the ACLink bus control, if present.

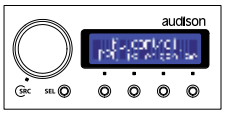
When the bit One is turned on the first time, the display will show the Firmware version installed in the DRC. The same information will be shown on the main screen of the PC software.

When the bit One is set up through the PC, the DRC can stay connected but its display will show the message “PC control - DRC is disabled”. Once the set up is completed, you must use the DRC.

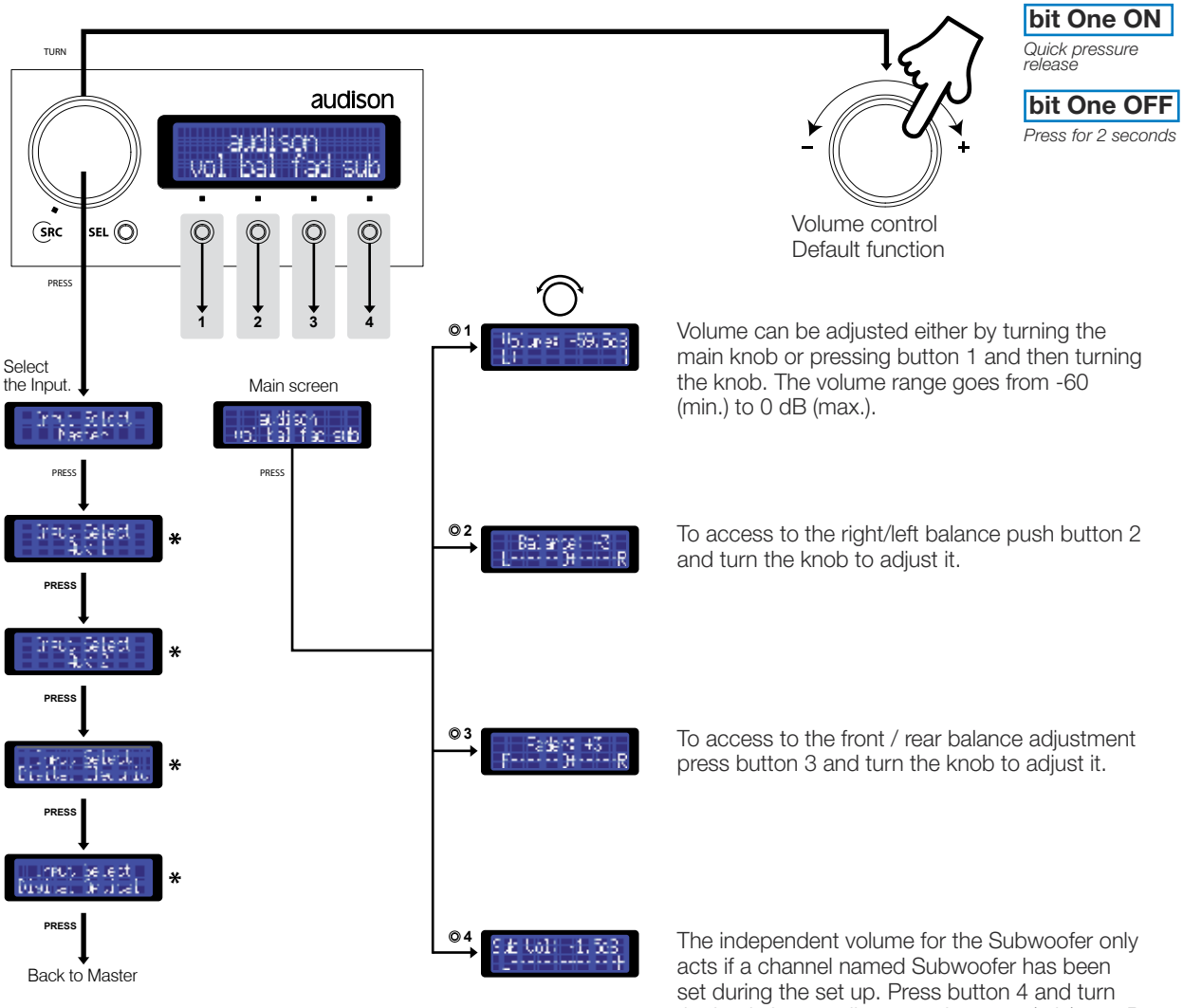
The DRC features are:

- bit One turning on / off;
- Main volume control;
- Subwoofer volume control;
- Right / left balance control;
- Front / rear fader control;
- Set sources selection;
- Memory selection;
- Dynamic EQ activation (if set);
- MASTER source level control activation.





DRC controlled by PC



Volume can be adjusted either by turning the main knob or pressing button 1 and then turning the knob. The volume range goes from -60 (min.) to 0 dB (max.).

To access to the right/left balance push button 2 and turn the knob to adjust it.

To access to the front / rear balance adjustment press button 3 and turn the knob to adjust it.

The independent volume for the Subwoofer only acts if a channel named Subwoofer has been set during the set up. Press button 4 and turn the knob for an adjustment from -12 (min) to 0 B (from -11.5 to 0 dB at 0.5 steps).

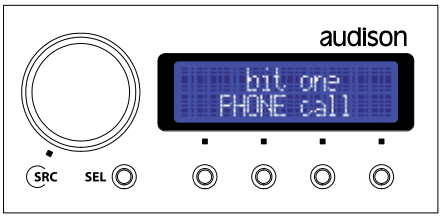
* These options are available only if activated during the first set up process, o if added afterwards during the bit One setup through the PC.

12.1 PHONE CALL

The PHONE input can not be selected as normal source because it activates exclusively when an external hands-free phone kit sends the MUTE impulse when receiving a phone call. The DRC display will show the message shown on the right, the bit One will set the source selected in that moment to muting, reproducing the signal coming from the PHONE input.

During the phone call the volume can be adjusted through the DRC knob.

Please, note that in any case you can pre-set the volume of this “source” and customize an adequate equalization curve through the software.

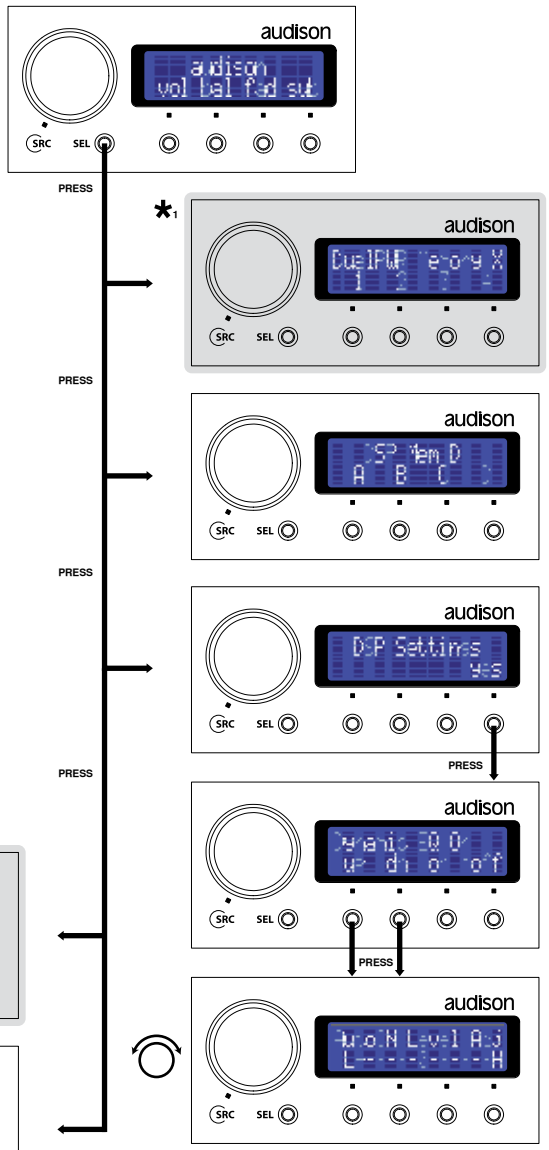


12.2 SEL BUTTON - FUNCTION

By pressing the SEL button you can access:

*1 Dual Power Memory: this entry is active only if amplifiers featuring Dual Power and Bias Control (Thesis TH) are connected to the bit One. You can recall the pre-sets set in each amplifier.

- DSP Memory: the A/B/C/D set memories can be recalled (through the software) and stored in the processor (bit One).
- DSP Settings: through this menu you can enable/ disable the Dynamic EQ as well as the Auto IN Level Adj. Function.
- Auto IN Level Adj: if while listening to the music the MASTER source volume moves and you do not have any indications about its original level, to correctly set it back to the level it was when it was initially tuned, insert the “SETUP CD” into the head unit, play track 1 and press the “yes” button on the DRC. Now adjust the MASTER source volume until the cursor (+) is on “0” and not over (to avoid the clipping).
- Brightness: to adapt the DRC to the light conditions inside the car compartment you can adjust the display and the red switch bezel brightness.



*2 This entry is only active if amplifiers featuring the Amplifier Status Controller are connected to the bit One through the ADLink / ACLink connection system.

12.3 BYPASSING THE DRC

You can bypass the DRC from the system to adjust the listening volume throught the head unit and the steering wheel controls if featured.

The following conditions are required to bypass the DRC:

- if the system features amplifiers provided with AC LINK connections (THESIS TH), they will have to work only with analog input (the ADLink connection can not be used).
- You do not have to use the bit One auxiliary inputs (AUX 1, AUX 2, SPDIF, OPTICAL).

Head unit volume adjustment:

While setting up the system, enable ACLink provided amplifiers through the software
(see section "HOW TO CONNECT THE BIT ONE TO THE PC", point 13).

WARNING: If you use the head unit volume and if you set it at low level, since the DRC is bypassed the audio reproduction quality may decrease.

12.4 UPGRADE FIRMWARE DRC

1. The different steps of this upgrade must be performed strictly following the sequence hereafter, exactly as per the chronological order indicated in this document.
2. The upgrade requires good skills in general PC management.
3. The firmware upgrade should be attentively performed, following the warnings listed in the DRC firmware upgrade section of this document, to avoid damaging the product.
4. In order for the DRC to be upgraded, it must be connected to a bit One, to a TH Amplifier or to a system featuring both bit One and TH amplifier.
   The software for DRC firmware upgrade requires the correct installation of the Audison AC-Link drivers inside the PC that will be used for the upgrade.
   If the bit One Management Software is already and correctly installed in the PC being used, you do not need to install the Audison AC-Link drivers again.
   If the PC used for the DRC firmware upgrade is not the PC where the previous software version for the DRC firmware has been installed, before proceeding you first need to install the software and drivers you can find in the CD supplied with the bit One product *(see section 6)*.

PRELIMINARY STEPS:

1. Create a new folder (named for example: DRC upgrade) on the Desktop, or wherever you prefer.
2. Download from **http://update.audison.eu** the zipped folder called, for example, "DRC_upgrade_firmware_1.50.zip" and save it in the folder you have just created.
3. Open the zipped folder **"DRC_upgrade_firmware_1.50.zip"** using a suitable software (for example Winzip or "Compressed folders" Windows utility if available in your PC), and save in your PC the file you can find inside the zipped folder **("DRC_upgrade_firmware_1.50.exe")**.

The firmware update procedure requires particular attention. So, it must be performed under the best possible conditions: if the firmware upgrade is launched but prematurely interrupted (for example because the PC locks up, or a supply voltage drop occurs to the bit One or to the TH amplifier, or the USB accidentally disconnects during the firmware upgrade), you need to contact our Customer Service for further support as memory programming may be necessary.

1. Connect the PC to the audio system where the DRC is installed (bit One or AC Link Interface for TH amplifiers) using a USB cable.

2. Turn on the bit One or the TH amplifier, so that the DRC is on.

3. Launch the software “DRC_upgrade_firmware_1.50.exe”.

4. Wait for the PC to synchronize with the DRC (scanning for devices).

5. If the PC correctly synchronizes with the DRC, click on “DRC Upgrade to V 1.50”.

6. A warning pop-up dialog box will appear, indicating that you have to:

- close all running programs;
- disable screen saver;
- disable energy saving modes;
- disable anti-virus softwares.

Click **“Yes”.**

DRC_Upgrade_V1_50
Please close all running programs and disable energy saving mode, screen saver and anti-virus softwares. Proceed?

7. Wait until the upgrade procedure is completed.

8. A pop-up dialog box showing the message “upgrade completed” will appear. Click on

9. Click on “Quit” to close the DRC Upgrade Software

13. ACCESSORIES

13.1 SFC Bench test device

Introduction

SFC is a digital audio signal adaptor (S\PDIF) to place between two devices with digital input/output. The main purpose of this adaptor is to solve issues related to digital interfacing of the two devices such as:

1. Digital head unit with higher sampling frequency (96/192 kHz) while the receiver can't handle frequencies higher than 48 kHz like in the case of BIT ONE.
2. The receiver/transmitter does not feature an optical or electric coaxial input/output: the SFC can be used to recreate the missing connection.
3. Malfunctioning or anomalous noises when the head unit is set to "Pause". The issue is caused by the fact that while being paused some head units strip away the digital signal carrier wave; SFC constantly provides the carrier wave to the receiver.
4. When "Play" is selected on the head unit and the music program is starter or during normal functioning intermittent noises can be heard even at low volume. This phenomenon is due to poor quality or insufficient level of the digital signal; SFC can recover the signal eliminating the issue.

Description

SFC is a sampling frequency converter; it converts the digital signal, inputting an S/PDIF digital signal with from 32 kHz to 192 kHz sampling frequency and outputting an S/PDIF digital signal with 48kHz sampling frequency.

SFC does not alter the information travelling along the signal, it can not handle AC3® or Dolby Surround® encoded signals but just stereo PCM ones and does not convert the digital signal into analog.

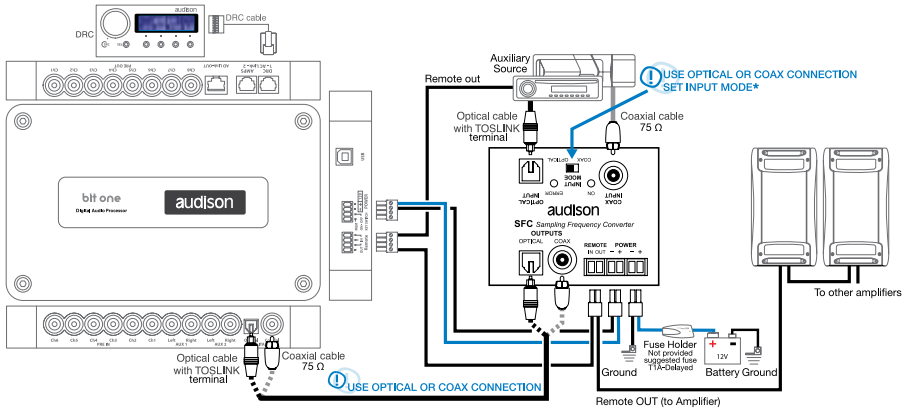
SFC features two inputs: one coaxial electrical (75 Ω) and another optical (TOSLINK). You have to select which input will be used through the INPUT MODE switch.

When the ERROR LED lights up, it indicates either that the input signal is not stereo PCM or that the signal is instable; in that case, the SFC goes into "Mute" status not to damage the devices connected to its outputs.

SFC features two outputs: one coaxial electrical (75 Ω) and another optical (TOSLINK). Both the outputs are active and if using the BIT ONE only one output has to be connected to it.

CONNECTION PATTERN:

1. L'SFC offers two power supply connections; one can be connected to the 12V power supply while the other can be used to supply the bit One.
2. Put a 1A fuse in the SFC main power cable.



TECHNICAL SPECIFICATIONS

Power Supply

Voltage	11 ÷ 15 VDC
Current consumption	0.1 A
Remote IN voltage	7 ÷ 15 VDC
Remote OUT voltage	7÷15 VDC (pass through)

Signal stage

Inputs	Selectable: Coaxial or Optical (S/PDIF)
Input sampling Frequency / resolution	32 kHz/16 bit ÷ 192 kHz/24 bit
Outputs	Coaxial and Optical (S/PDIF)
Output sampling Frequency	48 kHz
Size W (Width) x H (Height) x D (Depth) mm/inch	86 x 37 x 80 / 3"3/8 x 1"1/2 x 3"1/8
Weight kg/lb	0,14 / 0.31

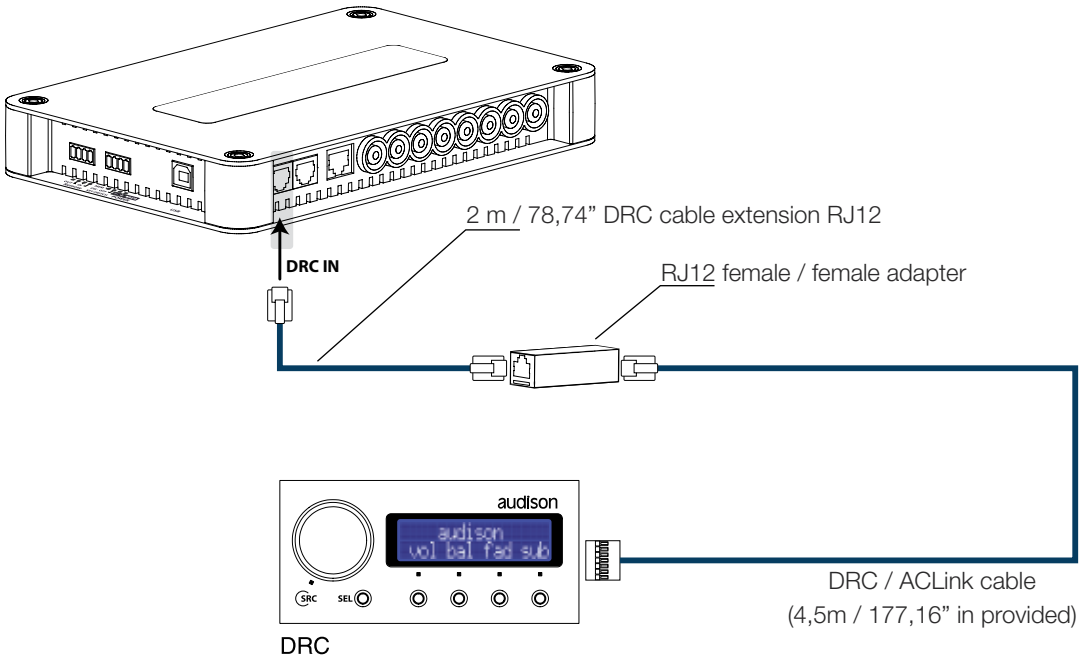
13.2 DRC CABLE EXTENSION KIT

It is a kit composed of a cable and an adapter allowing a 2 mt / 78,74” additional extension of the cable supplied with the DRC.

This extension becomes necessary in installations on particularly long vehicles such as the big SUV’s.

Total length of the supplied cable with the extension is equal to 6,5 mt / 225,90”.

CONNECTION PATTERN:



14. TECHNICAL SPECIFICATIONS

Power supply	
Voltage	11 ÷ 15 VDC
Idling current	0.45 A
Switched off without DRC	<0.5 mA
Switched off with DRC	<1.8 mA
Remote IN voltage	7 ÷ 15 VDC (1.3 mA)
Remote OUT voltage (bit One)	12 VDC (20 mA)
Remote OUT voltage (bit One.1)	12 VDC (130 mA)
Signal stage	
Distortion - THD @ 1 kHz, 1 VRMS Output	0.002 %
Bandwidth @ -3 dB	4.5 ÷ 21k Hz
S/N ratio @ A weighted	
Digital Input	112 dB
Master Input	96.5 dB
AUX Input	100 dB
Channel Separation @ 1 kHz	77 dB
Input sensitivity (Pre In)	0.3 ÷ 5 V
Input sensitivity (Speaker In)	1.2 ÷ 20 V
Input impedance (Pre In)	20 kΩ
Input impedance (Speaker In)	5 kΩ
Max Output Level (RMS) @ 0.1% THD	4 V
Input stage	
Low level (Pre)	Ch1÷Ch6, AUX1 L/R, AUX2 L/R
High Level (Spk)	Ch1÷Ch8, Phone IN
Digital	Coaxial, Optical (S/PDIF Max 48 kHz/24 bit)
Output stage	
Low level (Pre)	Ch1÷Ch8
Digital	ADLink (Ch1÷Ch8 S/PDIF)
Connection	
From / To Personal Computer	1 x USB / B (2.0)
To Audison Electronics	2 x ACLink control bus
Crossover	N. 8 (one each output channel)
Filter type	Full / High Pass / Low Pass / Band Pass
Filter mode and slope	Linkwitz @ 12 / 24 / 36 / 48 dB
	Butterworth @ 6 / 12 / 18 / 24 / 30 / 36 / 42 / 48 dB
Crossover Frequency	70 steps @ 10 ÷ 20k Hz
Phase control	0° / 180°
Equalizer	
On High Level Inputs (Speaker In)	Automatic De-equalization
On AUX Inputs	N.4 x Graphic: ±12 dB @ 31 Band, ISO 1/3 Oct, 20 ÷ 20k Hz
On Outputs	N.8 x Graphic: ±12 dB @ 31 Band, ISO 1/3 Oct, 20 ÷ 20k Hz
Dynamic Equalization	Self-adjusting System between low and high listening levels
Time Alignment	
Distance	2.8 ÷ 748 cm / 1.1 ÷ 294.5 inches
Delay	0 ÷ 22 ms
Step	0.08 ms, 2.8 cm, 1.1 inch
Size	
W (Width) x H (Height) x D (Depth) mm/inch	150 x 32.3 x 225 / 5.90” x 1.27” x 8.85”
Weight kg/lb	1,345 / 2.965

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